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Manila

THE UNIVERSITY OF THE PHILIPPINES

CATALOGUE
1913-1914

ANNOUNCEMENTS
1914-1915



THE UNIVERSITY OF THE PHILIPPINES
BULLETIN NO. 4

MANILA
BUREAU OF PRINTING
1914

U of Philippines

The University of the Philippines



COLLEGE OF LIBERAL ARTS

COURSES LEADING TO THE DEGREES OF B. A., B. S., M. A., M. S.

SCHOOL OF EDUCATION

**COURSES LEADING TO TEACHER'S CERTIFICATE AND TO THE DEGREE OF
B. S. IN EDUCATION**

COLLEGE OF MEDICINE AND SURGERY

COURSES LEADING TO THE DEGREES OF M. D., D. T. M., D. P. H.

SCHOOL OF PHARMACY

COURSES LEADING TO THE DEGREES OF PH. G. AND B. S. IN PHARMACY

COLLEGE OF LAW

COURSES LEADING TO THE DEGREE OF LL. B.

COLLEGE OF AGRICULTURE

COURSES LEADING TO THE DEGREES OF B. Agr., B. S. Agr., B. S. F., M. S.

COLLEGE OF ENGINEERING

COURSES LEADING TO THE DEGREES OF B. S. C. E. AND M. S. C. E.

COLLEGE OF VETERINARY SCIENCE

COURSES LEADING TO THE DEGREE OF D. V. M.

SCHOOL OF FINE ARTS

COURSES IN PAINTING, SCULPTURE AND ENGRAVING

THE UNIVERSITY OF THE PHILIPPINES

CATALOGUE
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1914

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THE UNIVERSITY OF THE PHILIPPINES

FOURTH ANNUAL ANNOUNCEMENT AND CATALOGUE

1914

JANUARY								MAY								SEPTEMBER							
S.	M.	T.	W.	T.	F.	S.		S.	M.	T.	W.	T.	F.	S.		S.	M.	T.	W.	T.	F.	S.	
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1915

JANUARY							MAY							SEPTEMBER						
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FEBRUARY							JUNE							OCTOBER						
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MARCH							JULY							NOVEMBER						
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21	22	23	24	25	26	27	18	19	20	21	22	23	24	21	22	23	24	*	26	27
28	29	30	31	—	—	—	25	26	27	28	29	30	31	28	29	30	—	—	—	—
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11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18
18	19	20	21	22	23	24	22	23	24	25	26	27	28	19	20	21	22	23	24	*
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Calendar

Day of week and month	Event
1914	
Monday, June 8	College of Agriculture opens.
Monday to Saturday, June 15 to 20	Entrance examinations.
Thursday to Tuesday, June 25 to 30	Registration and physical examination days for all colleges except Agriculture.
Wednesday, July 1	Exercises of first semester begin.
Saturday, July 4	Legal holiday.
Thursday, August 13	Legal holiday.
Monday to Saturday, October 26 to 31	Final examinations of first semester.
Saturday, October 31	First semester ends.
Sunday to Sunday, November 1 to 8	Intersemester vacation.
Monday, November 9	Exercises of second semester begin.
Thursday, November 26	Legal holiday.
Sunday, December 20	Christmas vacation begins.
1915	
Sunday, January 3	Christmas vacation ends.
Monday, January 4	Exercises resumed.
Monday, February 22	Legal holiday.
Monday to Saturday, March 22 to 27	Final examinations of second semester.
Monday to Thursday, March 29 to April 1.	Commencement week.

Board of Regents of the University of the Philippines

REGENTS EX OFFICIO

THE HONORABLE HENDERSON S. MARTIN,

Secretary of Public Instruction, Chairman of the Board.

THE HONORABLE WINFRED THAXTER DENNISON, A. B., LL. B.,

Secretary of the Interior.

FRANK LINDER CRONE, B. A.,

Director of Education.

THE HONORABLE RAFAEL CORPUS, B. A., LICENCIADO DE JURIDICOS.¹

Chairman of the Committee of Public Instruction of the Philippine Assembly.

MURRAY BARTLETT, A. B., A. M., D. D.,

President of the University.

THE HONORABLE E. FINLEY JOHNSON, B. S., LL. M.,

Justice of the Supreme Court.

APPOINTED REGENTS

THE HONORABLE IGNACIO VILLAMOR, B. A., M. A., LL. M.

Term expires 1914.

THE HONORABLE JOSE ESCALER, B. A., LL. B., LL. M., M. A.

Term expires 1915.

THE MOST REVEREND JEREMIAS JACOB HARTY, D. D.

Term expires 1916.

THE HONORABLE RAFAEL PALMA, B. A., LICENCIADO DE JURIDICOS.

Term expires 1917.

Term expires 1918.

OFFICERS OF THE BOARD OF REGENTS

THE HONORABLE HENDERSON S. MARTIN,

Chairman.

JAMES F. KEMP, M. D.,

Secretary.

JEREMIAH L. MANNING,

Treasurer of the Philippine Islands, Treasurer ex officio.

¹ Resigned.

STANDING COMMITTEES OF THE BOARD OF REGENTS

COLLEGE OF LIBERAL ARTS

Regents CRONE and CORPUS.

COLLEGE OF MEDICINE AND SURGERY

Regents DENNISON, JOHNSON, and VILLAMOR.

COLLEGE OF LAW

Regents PALMA, JOHNSON, and ESCALER.

COLLEGE OF AGRICULTURE

Regents HARTY and PALMA.

COLLEGE OF VETERINARY SCIENCE

Regents CORPUS and DENNISON.

COLLEGE OF ENGINEERING

Regents JOHNSON and CRONE.

SCHOOL OF FINE ARTS

Regents ESCALER and —————

PERSONNEL

The PRESIDENT OF THE UNIVERSITY, Regents HARTY and PALMA.

LEGISLATION

Regents VILLAMOR, PALMA, and CORPUS.

GROUNDS AND BUILDINGS

The CHAIRMAN, Regents CRONE and DENNISON.

Officers of Administration

MURRAY BARTLETT,

President of the University.

EDWIN BINGHAM COPELAND,

Dean of the College of Agriculture.

WILLIAM EVERETT MUSGRAVE,

Dean of the College of Medicine and Surgery.

RAFAEL ENRIQUEZ,

Dean of School of Fine Arts.

WILLIAM JOSEPH COLBERT,

Dean of the College of Liberal Arts.

ARCHIBALD ROBINSON WARD,

Dean of the College of Veterinary Science.

CLARENCE G. WRENTMORE,

Dean of the College of Engineering.

GEORGE A. MALCOLM,

Dean of the College of Law.

ANDREW GROVER DUMEZ,

Director of the School of Pharmacy.

JAMES FINLEY KEMP,

Secretary of the University.

SELINA E. WADDINGTON,

Chief of Records.

WILBUR C. DEMING,

Chief Accountant.

UNIVERSITY COUNCIL

The University Council consists of the President, Secretary, the Deans, and all officers of instruction holding the rank of professor, associate professor, and assistant professor.

Officers of Instruction

PROFESSORS

GEORGE PATRICK AHERN,
Professor of Forestry.

United States Military Academy, 1882.
Major, U. S. Army (retired).
LL. B., Yale, 1895.
(Director of the Bureau of Forestry.)

JOSE ALBERT,
Professor of Pediatrics.
B. A., Ateneo de Manila, 1882.
M. D., Universidad Central de Madrid, 1889.

CHARLES FULLER BAKER,
Professor of Agronomy.
B. S., Michigan Agricultural College, 1892.
M. A., Leland Stanford Junior University, 1903.

ARISTON BAUTISTA Y LIN,
Professor of Clinical Medicine and Therapeutics.
M. D., Universidad Central de Madrid, 1892.

FERNANDO CALDERON,
Professor of Obstetrics.
B. A., Ateneo de Manila, 1885.
L. M., University of Santo Tomas, 1891.

ERNEST BANCROFT CONANT,
Professor of Law.
A. B., Harvard University, 1895.
LL. B., Harvard University, 1898.

EDWIN BINGHAM COPELAND,
Professor of Plant Physiology.
Ph. D., University of Halle-Wittenberg.

PHILIP KINGSNORTH GILMAN,
Professor of Surgery.
B. A., Leland Stanford Junior University, 1901.
M. D., Johns Hopkins University, 1905.

VICTOR GEORGE HEISER,
Professor of Hygiene.
M. D., Jefferson Medical College, 1897.

WILLIAM EVERETT MUSGRAVE,
Professor of Clinical Medicine.
M. D., George Washington University, 1901.

ARCHIBALD ROBINSON WARD,
Professor of Preventive Veterinary Medicine.
B. S. A. (1898), D. V. M. (1901), Cornell University.

CLARENCE GEORGE WRENTMORE,
Professor of Engineering.
B. S. (1893), M. S. (1898), C. E. (1901), University of Michigan.

¹
"Paul Caspar Freer Professor of Chemistry."

¹ Vacant.

PROFESSORIAL LECTURERS

ADAM C. CARSON,
Professorial Lecturer on International Law.

LL. B., University of Virginia, 1893.

AMASA S. CROSSFIELD,
Professorial Lecturer on Contracts.

LL. B. (1883), LL. M. (1884), Georgetown University.

CLYDE A. DeWITT,
Professorial Lecturer on Agency and Partnership.

LL. B., University of Michigan, 1908.

WASHINGTON L. GOLDSBOROUGH,
Professorial Lecturer on Legal Procedure.

LL. B., University of Maryland, 1890.

CHARLES SUMMER LOBINGIER,¹
Professorial Lecturer on Civil Law.

M. A. (1892), B. A. (1888), LL. M. (1894), Ph. D. (1903), University of Nebraska.

QUINTIN PAREDES,
Professorial Lecturer on Criminal Law.

LL. B., Escuela de Leyes, Manila, 1906.

A. B., University of Santo Tomas, 1910.

LL. M., Escuela de Derecho, Manila, 1910.

FREDERIC W. TAYLOR, F. R. G. S.,¹
Professorial Lecturer on Horticulture.

Director of the Bureau of Agriculture.

ASSOCIATE PROFESSORS

VERNON LEE ANDREWS,¹
Associate Professor of Bacteriology and Pathology.
M. D., University Medical College, Kansas City, 1906.

ELBERT CLARK,
Associate Professor of Anatomy.
B. S., University of Arkansas, 1903.

WILLIAM JOSEPH COLBERT,
Associate Professor of Mathematics.
B. A., Dartmouth College, 1900.

BOWMAN CORNING CROWELL,
Associate Professor of Pathology and Bacteriology.
B. A., McGill College, 1900.
M. D., C. M., McGill University Medical School, 1904.
Pathologist, Biological Laboratory, Bureau of Science.

HORACE GROVE DEMING,
Associate Professor of Chemistry.
Ph. D., University of Wisconsin, 1911.

DEAN SPRUILL FANSLER,¹
Associate Professor of English.
B. A., Northwestern University, 1906.
M. A. (1907), Ph. D. (1912-1913), Columbia University.

¹ Resigned.

ASSOCIATE PROFESSORS—Continued

HARRY DRAKE GIBBS,

Associate Professor of Chemistry.

B. S. (1894), Ph. D. (1913), Cornell University.

ROBERT BANKS GIBSON,

Associate Professor of Physiology.

Ph. B. (1902), Ph. D. (1906), Yale University.

ALBERT GEORGE GLODT,

Associate Professor of Agricultural Engineering.

C. E. and M. E., École Centrale des Arts et Manufactures, Paris, 1896.

LAWRENCE EDMONDS GRIFFIN,¹

Associate Professor of Zoology.

B. A. and Ph. B., Hamline University, 1895.

Ph. D., Johns Hopkins University, 1900.

LUIS GUERRERO,

Associate Professor of Tropical Medicine.

M. D., Universidad de Santo Tomás, 1901.

ELMER DREW MERRILL,

Associate Professor of Botany.

B. S. (1898), M. S. (1904), University of Maine.

WALTER CHARLES REIBLING,

Associate Professor of Chemical Engineering.

B. S. (1905), Ch. E. (1912), University of Michigan.

REINHARD REMBE,

Associate Professor of Ophthalmology, Otology, Rhinology, and Laryngology.

M. D., Royal University, Berlin, 1894.

HERMAN WHITE REYNOLDS,

Associate Professor of Engineering.

B. S. (M. E.) (1899), M. E. (1908), University of Pennsylvania.

BALDOMERO ROXAS,

Associate Professor of Obstetrics.

B. A., Ateneo de Manila, 1885.

M. D., Universidad Central de Madrid, Spain, 1892.

ALFRED OGLE SHAKLEE,

Associate Professor of Pharmacology.

B. S., University of Chicago, 1899.

M. D., St. Louis University, 1908.

ERNEST LINWOOD WALKER,

Associate Professor of Medical Zoology.

B. A. S. (1896), B. S. (1903), S. D. (1907), Harvard University.

JAMES REMUS WRIGHT,

Associate Professor of Physics.

B. S., Westminster College, 1905.

Ph. D., University of Chicago, 1911.

¹ On leave.

ASSISTANT PROFESSORS

ALVIN BROERMAN,¹

Assistant Professor of Veterinary Medicine.

D. V. M., Ohio State University, 1909.

GEORGE MICHAEL CASSIDY,

Physical Director.

B. S., University of Vermont, 1910.

RHEINART PARKER COWLES,

Assistant Professor of Zoology.

B. A., Leland Stanford Junior University, 1899.

Ph. D., Johns Hopkins University, 1904.

AUSTIN CRAIG,

Assistant Professor of History.

B. L., (1894), M. L. (1907), M. A. (1911), Pacific University.

HAROLD CUZNER,¹

Assistant Professor of Agronomy and Farm Superintendent.

B. S. F., University of Minnesota, 1905.

ANDREW GROVER DU MEZ,

Assistant Professor of Pharmacology.

Ph. G. (1904), B. S. (1907), M. S. (1909), University of Wisconsin.

SAMUEL BERT DURHAM,

Assistant Professor of Animal Husbandry.

B. S., Oklahoma State Agricultural College, 1904.

HARRIOTT ELY FANSLER,²

Assistant Professor of English.

Ph. B. (1902), M. A. (1906), Northwestern University.

Ph. D., Columbia University, 1912-1913.

FREDERICK WILLIAM FOXWORTHY,

Assistant Professor of Wood Technology.

Ph. D., Cornell University, 1904.

ALEXANDER SARKIS GALAJIKIAN,²

Assistant Professor of Mathematics.

B. A., Robert College, Constantinople, 1904.

B. A., Cornell University, 1909.

POTENCIANO GUAZON,

Assistant Professor of Surgery.

B. A., Ateneo de Manila, 1903.

M. D., Rush Medical College, 1908.

ROY WALLACE HAMMACK,

Assistant Professor of Pathology.

B. A., University of Oregon, 1907.

M. D., Johns Hopkins University, 1911.

LEO JOSEPH LASALLE,²

Assistant Professor of Physics.

B. S., Louisiana State University, 1908.

M. S., Pennsylvania State College, 1911.

¹ On leave.² Resigned.

ASSISTANT PROFESSORS—Continued

EDGAR MADISON LEDYARD,
Assistant Professor of Entomology and Superintendent of Buildings and Sanitation.
B. S. A., University of the Philippines, 1913.

RUSKIN LHAMON,
Assistant Professor of Anatomy.
B. A., University of Missouri, 1907.
M. D., Washington University, Mo., 1910.

DONALD MAXWELL MATTHEWS,
Assistant Professor of Forestry.
B. A. (1908), M. S. F. (1909), University of Michigan.

EUSTACE S. D. MERCHANT,
Assistant Professor of Veterinary Medicine.
D. V. M., New York State Veterinary College, Cornell University, 1912.

DONALD BRAMPTON PALMER,
Assistant Professor of Veterinary Anatomy.
D. V. M., Iowa State College, 1911.

MARIANO VIVENCIO DEL ROSARIO,¹
Assistant Professor of Chemistry.
Phar. D., University of Madrid, 1893.
M. S., University of Chicago, 1909.

SALVADOR VIVENCIO DEL ROSARIO,
Assistant Professor of Hygiene.
B. A., University of Santo Tomas, 1880.
M. D., University of Madrid, 1892.

RANDALL A. ROWLEY,
Assistant Professor of Geology.
B. S., University of Chicago, 1906.

HANS ERNST SCHIFFBAUER,²
Assistant Professor of Surgery.
M. D., University of Illinois, 1907.

WALTER ROBERT SHAW,
Assistant Professor of Botany.
B. A. (1892), M. A. (1894), Ph. D. (1897), Leland Stanford Junior University.

ANTONIO GUILLERMO SISON,
Assistant Professor of Medicine.
B. A., M. A., San Juan de Letran, Manila, 1903.
M. D., University of Pennsylvania, 1908.

OSCAR FRANKLIN SMITH,
Assistant Professor of Physics.
B. S., Pennsylvania State College, 1911.

AUGUSTUS P. WEST,¹
Assistant Professor of Chemistry.
B. A. (1901), Ph. D. (1905), Johns Hopkins University.

DAVID GIFFORD WILLETS,
Assistant Professor of Medical Zoology.
Ph. B., Wesleyan University, Middletown, Conn., 1902.
M. D., George Washington University Medical School, 1907.

¹ On leave.² Resigned.

INSTRUCTORS

FRANCISCO AGCAOILI,
Instructor in Chemistry.

A. B., Cornell University, 1907.

JOSE M. ASUNCION,
Secretary, School of Fine Arts, and Instructor in the History of Art and Perspective.

CONRADO BENITEZ,
Instructor in History.

Ph. B. (1910), M. A. (1911), University of Chicago.

FRANCISCO BENITEZ,¹
Instructor in Education.

B. S. E., Columbia University, 1910.

OLIVER FREDERICK BISHOP,
Instructor in Dendrology.

Ph. B. (1909), M. F. (1911), Yale University.

OSWALD HANCE BLACKWOOD,
Instructor in Physics.

B. A., Boston University, 1909.

GEORGE BOCOBO,
Instructor in Law.

LL. B., University of Indiana, 1907.

TEODORO BUENAVENTURA,
Instructor in Elementary Drawing.

VICTOR BUENCAMINO,
Instructor in Veterinary Surgery and Obstetrics.

D. V. M., Cornell University, 1911.

CHARLES DE GUIRE CHRISTOPH,
Instructor in English.

B. A., University of Michigan, 1912.

GUY CLINTON,
Instructor in Chemistry.

B. S., Western Normal College, 1891.

TIMOTEO DAR JUAN,
Instructor in Chemistry.

B. A. (1904), Phar. C. (1905), Liceo de Manila.

ARTEMAS LAWRENCE DAY,
Instructor in Zoology.

B. S., University of Chicago, 1905.
M. A., University of the Philippines, 1913.

EDWIN LEROY DRIGGS,
Instructor in Physics and Surveying.

B. S. (1906), C. E. (1908) University of Missouri.

KENNETH WHITNEY DUNCAN,²
Instructor in English.

B. A., University of Michigan, 1910.

¹ On leave.

² Resigned.

INSTRUCTORS—Continued

JOSE EDUQUE,¹

Instructor in Surgery.

M. D., Philippine Medical School, 1909.

INOCENCIO ELAYDA,

Instructor in Agronomy and Farm Foreman.

B. S. A., Iowa State College, 1911.

RAFAEL ENRIQUEZ,

Dean, School of Fine Arts and Instructor in Color and Composition.

JOSE ARMAYAN ESPIRITU,

Instructor in Spanish.

LL. B., University of the Philippines, 1918.

ARTHUR FEDERICK FISCHER,

Instructor in Forest Engineering.

C. E., Ohio Northern University, 1909.

M. F., Yale University, 1911.

VICENTE FRANCISCO,

Instructor in Sculpture.

ARTURO GARCIA.

Instructor in Anatomy.

B. A. (1906), M. D. (1908), University of Colorado.

FRANK CALEB GATES,

Instructor in Botany.

B. A., University of Illinois, 1910.

Ph. D., University of Michigan, 1912.

MIRIAM EDMONDS GRIFFIN,

Instructor in Hygiene.

B. A. (1900), M. D. (1905), University of Minnesota.

PERPETUO DIONISIO GUTIERREZ,

Instructor in Medicine.

M. D., Northwestern University Medical School, 1911.

JOAQUIN M. HERRER,

Instructor in Landscape and Drawing from Life.

PILAR HIDALGO,

Instructor in Mathematics.

B. A., University of the Philippines, 1918.

SERAFIN P. HILADO,

Instructor in Law.

LL. B., University of the Philippines, 1918.

JOSE HILARIO,¹

Instructor in Pathology and Bacteriology.

M. D., University of the Philippines, 1911.

WILLIAM TATUM HILLES,¹

Instructor in English.

B. A., Haverford College, 1904.

M. A., Harvard University, 1905.

¹ On leave.

INSTRUCTORS—Continued

FELIX HOCSON,

Instructor in Pharmacology.

B. A., Ateneo de Manila, 1902.

Ph. C., University of Michigan, 1909.

RICHARD MORRIS HOLMAN,¹

Instructor in Botany.

B. A., Leland Stanford Junior University, 1907.

LEON SANFORD JOHNSTON,

Instructor in Mathematics.

M. DONALD KNAPP,

Instructor in Forest Engineering.

A. B. (1911), M. S. F. (1913), University of Michigan.

CAROLINE STEIN LEDYARD,

Instructor in German.

B. A., University of Michigan, 1912.

HENRY LEVY,

Instructor in Engraving.

SOL FELTY LIGHT,

Instructor in Zoology.

B. A., Park College, 1908.

M. A., University of the Philippines, 1913.

ARSENIO LUZ,

Instructor in Spanish.

A. B., Liceo de Manila, 1906.

AMBROSIO MAGSAYSAY,

Instructor in Drawing.

C. E., Cornell University, 1909.

CHARLOTTE ELIZABETH NEALE,

Instructor in History.

B. L., University of California, 1901.

ALICE JOSEPHINE O'MALLEY,

Instructor in French and Latin.

B. A., Smith College, 1898.

MAURICIO JULIAN OTEYZA,

Instructor in Silviculture.

B. S. A., Kansas State Agricultural College, 1908.

M. F., Yale University, 1908.

DANIEL DE LA PAZ,

Instructor in Pharmacology.

M. D., University of Illinois, 1910.

JAMES ERWIN REED, Jr.,²

Instructor in Medicine.

M. D., Cornell University, 1906.

¹ Absent on leave.² Resigned.

INSTRUCTORS—Continued

CARMELO MALABANAN REYES,
Instructor in Surgery.

M. D., University of Illinois, 1910.

VICENTE RIVERA,
Instructor in Drawing.

SHIRLEY ELMER ROBERTS,
Instructor in Mathematics.

B. A., Harvard University, 1900.

FABIAN DE LA ROSA,
Instructor in Decorative Art.

DOROTHY A. RUNDLES,
Instructor in English.

JOHN CLINTON RUNDLES,
Instructor in Agronomy.

RALPH LESLIE RUSK,
Instructor in English.

B. A., University of Illinois, 1909.

M. A., Columbia University, 1912.

ALEXANDER EDWARD WROTTESELEY SALT,¹
Instructor in History and Economics.

B. A., University of Oxford (Balliol College), 1897.

M. A., McGill University, 1908.

OTTO JOHNS SCHEERER,
Instructor in German.

FERDINAND SCHMITTER,
Instructor in Pathology.

A. B., Union College, 1899.

M. D., Johns Hopkins University, 1908.

HONORIA ACOSTA SISON,
Instructor in Obstetrics.

M. D., Women's Medical College of Pennsylvania, 1909.

COURT R. STANLEY,²
Demonstrator in Medicine.

M. D., Rush Medical College, 1911.

MARIANO TOLENTINO,
Instructor in Obstetrics.

M. D., University of Illinois, 1910.

ARISTEO UBALDO,
Temporary Instructor in Diseases of the Eye, Ear, Nose, and Throat.

A. B. Ateneo de Manila, 1899, M. D., University of Santo Tomas, 1906.

ANTONIO DANIEL VAZQUEZ,
Instructor in Surgery.

M. B. (1909), B. S. (1909), M. D. (1910), London (England) University.

¹ Resigned.

² On leave.

INSTRUCTORS—Continued

ALBERT HUNTINGTON WELLS,
Instructor in Chemistry.

B. A., Leland Stanford Junior University, 1910.

LAWRENCE DILLER WHARTON,
Instructor in Zoology.

B. A., Missouri Valley College, 1907.

M. A., University of the Philippines, 1918.

WALLACE L. WRIGHT,
Instructor in Public Speaking.

B. S. (1887), B. L. (1890), Valparaiso University.

MIGUEL ZARAGOZA,
Instructor in Anatomy in the School of Fine Arts.

LECTURERS ON LAW

JOSE ESCALER,
Lecturer on Comparative Jurisprudence.

M. A., LL. M., Yale University.

JOHN WILLIAM FERRIER,
Lecturer on Admiralty, Customs Practice, and Mercantile Law.

LL. B., University of Michigan, 1895.

FRANK B. INGERSOLL,
Lecturer on Mining Law.

B. O., University of Tennessee, 1886.

GEORGE A. MALCOLM,
Lecturer on Law.

A. B., University of Michigan, 1904.

LL. B., George Washington University; University of Michigan, 1906.

ROBERT E. L. NEWBERNE,
Lecturer on Medical Jurisprudence.

M. D., Georgetown University, 1893.

D. D. S., North Pacific College of Dentistry, 1896.

B. S. (1900), M. S. (1901), George Washington University.

FRANCISCO ORTIGAS Y BARCINAS,
Lecturer on Mortgages.

LL. M., University of Santo Tomas, 1896.

RAFAEL DEL PAN,
Lecturer on Penology.

A. B., University of Santo Tomas, 1880.

LL. M. (1885), LL. D. (1887), University of Madrid.

JOSE A. SANTOS,
Lecturer on Law.

LL. B., Northwestern University, 1908.

LL. M., George Washington University, 1909.

JUAN SUMULONG,
Lecturer on Legal Ethics.

ANTONIO VILLAREAL,
Lecturer on Law.

LECTURERS ON SPECIAL TOPICS

CHARLES SUMNER BANKS,
Lecturer on Medical Entomology.

M. S., University of the State of New York, 1899.
Biological Laboratory, Bureau of Science.

PAUL CLEMENTS,
Lecturer on Health Station Work.
Medical Inspector, Bureau of Health.

ALMON PLINY GOFF,
Lecturer on Disposal of the Dead.
M. D., University of Buffalo, 1897.
Bureau of Health.

MANUEL GOMEZ,
Lecturer on Social and Vital Statistics.
B. A., Ateneo Municipal, Manila, 1875.
L. M., University of Sto. Tomas, 1881.
Chief, Division of Statistics Bureau of Health.

GEORGE GUERDRUM,
Lecturer on Sanitary Engineering and Structural Sanitation.
B. S., George Washington University, 1910.
Chief, Sanitary Engineering Division, Bureau of Health.

SAMUEL C. GURNEY,
Lecturer on Medical Economics and Ethics.
M. D., McGill University, and Detroit College of Medicine, 1900.
Major, Medical Division, Philippine Constabulary.

MAURICE BRUIN MITZMAIN,
Lecturer on Veterinary Entomology.
B. S. (1908), M. S. (1910), University of California.

ROBERT E. L. NEWBERNE,
Lecturer on Nervous and Mental Diseases, Dermatology, and Medical Jurisprudence.
M. D., Georgetown University, 1893.
D. D. S., North Pacific College of Dentistry, 1896.
B. S. (1900), M. S. (1901), George Washington University.
Bureau of Health.

JAMES ALEXANDER ROBERTSON,
Lecturer on Library Science.
Ph. B. (1896), L. H. D. (1900), Western Reserve University.

ERNEST HENRY RUEDIGER,
Lecturer on Immunity and Serum Therapy.
M. D., Rush Medical College, 1903.

EDWIN EMIL SCHNEIDER,
Lecturer on Wood Technology.
B. L., University of Cincinnati, 1897.

OTTO SCHÖBL,
Lecturer on Disinfection and Disinfectants.
M. D., University of Prague, Austria, 1904.
Assistant Biological Laboratory, Bureau of Science.

LECTURERS ON SPECIAL TOPICS—Continued

JAMES W. SMITH,

Lecturer on Prison Sanitation.

M. D., Northwestern University, Chicago, 1894.
Chief, Prison Sanitation Division, Bilibid Prison.

FRED WILLEN WOOD,

Lecturer on Serum Prophylaxis in Rinderpest.

D. V. M., Cornell University, 1907.

WILEY E. WOODBURY, M. D.,¹

Lecturer on Hospital Construction and Management.

Superintendent, Philippine General Hospital.

STANTON YOUNGBERG.

Lecturer on Civics and Veterinary Jurisprudence.

D. V. M., Ohio State University, 1907.

ASSISTANTS

MARY GLENN BUTLER,

Assistant in Anatomy and Physiology.

ISABELO CONCEPCION,

Assistant in Physiology.

M. D., University of the Philippines, 1912.

ELIAS DOMINGO Y SALGADO.

Assistant in Medicine.

M. D., University of the Philippines, 1913.

PRIMITIVO ELIZALDE,

Assistant in Medicine.

M. D., University of the Philippines, 1913.

HILARION T. FELICIANO,

Assistant in Obstetrics.

M. D., University of the Philippines, 1913.

BIENVENIDO MARIA GONZALEZ,

Assistant in Animal Husbandry.

B. Agr., University of the Philippines, 1913.

JESUS GONZALEZ,

Assistant in Surgery.

B. A., San Juan de Letran, 1902.

M. D., Rush Medical College, 1909.

VICTORIANO LUNA,

Assistant in Department of the Eye, Ear, Nose, and Throat.

M. D., University of the Philippines, 1913.

MARIA MENDOZA-GUAZON,¹

Assistant in Medicine.

M. D., University of the Philippines, 1912.

MANUEL ROXAS,

Assistant in Chemistry.

A. B., Ateneo de Manila, 1905.

B. S. A. (1911), M. S. (1913), University of the Philippines.

¹ Resigned.

ASSISTANTS—Continued

GUILLERMO RUSTIA,
Assistant in Obstetrics.

A. B. (1907), M. L. (1913), University of Santo Tomas.

BERNARDO SAMSON,
Assistant in Pathology and Bacteriology.

A. B., Liceo de Manila, 1904.

Ph. G. (1909), M. D. (1912), Northwestern University.

GERVASIO SANTOS Y CUYUGAN,
Assistant in Surgery.

M. D., University of Illinois, 1910.

TEODORICO VALERIO,
Assistant in Surgery.

M. D., University of the Philippines, 1913.

HERMINIO E. VELARDE,
Assistant in Department of the Eye, Ear, Nose, and Throat.

M. D., University of the Philippines, 1913.

FRANK H. WILLYOUNG,¹
Assistant in Pathology and Curator of the Museum.

COMMITTEE ON ADMISSIONS

WILLIAM JOSEPH COLBERT.
FRANK LINDER CRONE.
GEORGE A. MALCOLM.
EDWIN BINGHAM COPELAND.

ATHLETIC ASSOCIATION

BOARD OF CONTROL

FACULTY MEMBERS

Associate Professor **WILLIAM JOSEPH COLBERT**, President.
Assistant Professor **RUSKIN LHAMON**, Secretary-Treasurer.
Assistant Professor **FRED W. FOXWORTHY**.

STUDENT MEMBERS

REGINO YLANAN.
GEORGE VARGAS.
HILARION SILAYAN.

Assistant Professor **GEORGE MICHAEL CASSIDY.**
Physical Director.

COMMITTEE ON STUDENT WELFARE

Mr. AMBROSIO MAGSAYSAY.
Mr. FELIX HOCSON.
Mr. GEORGE BOCOBO.
Mr. CONRADO BENITEZ.
Dr. VICTOR BUENCAMINO.

¹ Resigned.



LAW FOUNDING THE UNIVERSITY OF THE PHILIPPINES

An Act for the purpose of founding a university for the Philippine Islands, giving it corporate existence, providing for a Board of Regents, defining the board's responsibilities and duties, providing higher and professional instruction, and for other purposes. [Act No. 1870, amended by Act No. 2024, enacted Jan. 30, 1911.]

By authority of the United States, be it enacted by the Philippine Legislature, that:

SECTION 1. The Governor-General is hereby authorized, within the powers and limitations hereinafter specified, to establish in the city of Manila, or at the point he may deem most convenient, a university which shall be known by the designation of "University of the Philippines," the same being organized as a corporation under that name.

SEC. 2. The purpose of said university shall be to provide advanced instruction in literature, philosophy, the sciences, and arts, and to give professional and technical training.

SEC. 3. No student shall be denied admission to the university by reason of age, sex, nationality, religious belief, or political affiliation.

SEC. 4. The government of said university is hereby vested in a Board of Regents to be known as the "Board of Regents of the University of the Philippines." The Board of Regents shall be comprised of the Secretary of Public Instruction (who shall be *ex officio* chairman of the Board), the Secretary of the Interior, the Director of Education, the chairman of the Committee of Public Instruction of the Philippine Assembly, the president of the university, and a justice of the Supreme Court to be designated by the Governor-General, and five additional members to be appointed by the Governor-General, by and with the advice and consent of the Philippine Commission. The president of the university shall be elected and his compensation shall be fixed by the Board of Regents. The members of the Board of Regents appointed by the Governor-General shall hold office for a term of five years: *Provided, however,* That the regents first appointed by the Governor-General shall hold office as follows: One for

one year, one for two years, one for three years, one for four years, and one for five years, the term of office of each to be specified in his appointment by the Governor-General. In case of a vacancy among the members of the Board of Regents appointed by the Governor-General, such vacancy shall be filled by appointment by the Governor-General, by and with the advice and consent of the Philippine Commission, and such appointees shall hold office for the unexpired term. All members of the Board of Regents shall be citizens of the Philippine Islands or of the United States, and shall be residents of the Philippine Islands. Members shall serve without compensation other than actual and necessary traveling expenses incurred either in attendance upon meetings of the Board or upon other official business authorized by resolution of the Board.

SEC. 5. The University of the Philippines shall have the general powers set out in section thirteen of Act Numbered Fourteen hundred and fifty-nine, and the administration of said university and the exercise of its corporate powers are hereby vested in the Board of Regents.

SEC. 6. The Board of Regents shall have the following powers and duties, in addition to its general powers of administration and the exercise of the powers of the corporation:

(a) To receive and appropriate to the ends specified by law such sums as may be provided by law for the support of the university;

(b) To provide for the establishment of a College of Liberal Arts; a College of Law; a College of Social and Political Science; a College of Medicine and Surgery; a College of Pharmacy; a College of Dentistry; a College of Veterinary Science; a College of Engineering; a College of Mines; a College of Agriculture; and a School of Fine Arts; and colleges which the Legislature may provide for by appropriation: *Provided*, That the Board of Regents may establish these colleges or any of them as soon as in its judgment conditions shall favor their opening and funds shall be available for their maintenance: *And provided further*, That the Board of Regents, by and with the approval of the Governor-General, shall have power to combine two or more of the colleges authorized by this Act, in the interest of economy and efficiency: *And provided further*, That the Philippine Medical School, as established by Act Numbered Fourteen hundred and fifteen, as amended, shall become the College of Medicine and Surgery of the Philippine University as soon as two or more colleges of the University of the Philippines shall have been established and in actual operation;

(c) To confer the usual honorary degrees upon persons other than graduates of the university in recognition of learning, statesmanship, or eminence in literature, science, or art: *Provided*, That such degrees shall not be conferred in consideration of the payment of money or other valuable consideration;

(d) To establish chairs in the colleges hereinbefore mentioned, and to provide for the maintenance or endowment of such chairs, as well as to provide for such other professors, assistant professors, instructors, tutors, and lecturers as the progress of instruction may make necessary, and to fix the compensation pertaining to such positions;

(e) To appoint, on recommendation of the president of the university, professors, instructors, lecturers, and other employees of the university, to fix their compensation and to remove them for cause after an investigation and hearing shall have been had;

(f) To approve the courses of study and rules of discipline drawn up by the university council as hereinafter provided; to fix the tuition fees required of students, as well as matriculation fees, graduation fees and fees for laboratory courses, and all special fees; and to remit the same in special cases;

(g) To provide fellowships and scholarships and to award the same to students giving special evidence of merit;

(h) To prescribe rules for its own government, and to enact for the government of the university such general ordinances and regulations, not contrary to law, as are consistent with the purposes of the university as defined in section two of this Act.

SEC. 7. A quorum of the Board of Regents shall consist of a majority of all the members holding office at the time the meeting of the Board is called. All process against the Board of Regents shall be served on the president or secretary thereof.

SEC. 8. On or before the tenth day of August of each year the Board of Regents shall file with the Governor-General a detailed report, setting forth the progress, condition, and needs of the university.

SEC. 9. There shall be a university council, consisting of the president of the university and of all instructors in the university holding the rank of professor, associate professor, or assistant professor. The council shall have power to prescribe the courses of study and rules of discipline, subject to the approval of the Board of Regents. It shall fix the requirements for admission to any college of the university, as well as for graduation and the receiving of a degree. The council alone shall have the power to recommend students or others to be recipients of degrees. Through its president or committees it shall have disciplinary

power over the students within the limits prescribed by the rules of discipline approved by the Board of Regents. The powers and duties of the president of the university, in addition to those specifically provided for in this Act, shall be those usually pertaining to the office of the president of a university.

SEC. 10. The body of instructors of each college shall constitute its faculty, and as presiding officer of each faculty there shall be a dean elected from the members of such faculty by the Board of Regents on nomination by the President of the University. In the appointment of professors or other instructors of the university, no religious test shall be applied, nor shall the religious opinions or affiliations of the instructors of the university be made a matter of examination or inquiry: *Provided, however,* That no instructor in the university shall inculcate sectarian tenets in any of the teachings, nor attempt, either directly or indirectly, under penalty of dismissal by the Board of Regents, to influence students or attendants at the university for or against any particular church or religious sect.

SEC. 11. Professors and other regular instructors in the university shall be exempt as such from any civil-service examination or regulation as a requisite to appointment.

SEC. 12. There shall be a secretary of the university, appointed by the Board of Regents. He shall be the secretary of such Board and also of the university, and shall keep such records of the university as may be designated by the Board.

SEC. 13. The treasurer of the Philippine Islands shall be *ex officio* treasurer of the university, and all accounts and expenses thereof shall be audited by the Insular Auditor, and all disbursements shall be made in accordance with rules and regulations prescribed by him.

SEC. 14. Heads of Bureaus and Offices of the Insular Government are hereby authorized to loan or transfer, upon request of the president of the university, such apparatus or supplies as may be needed by the university and to detail employees for duty therein, when in the judgment of the head of the Bureau or Office such supplies or employees can be spared without serious detriment to the public service. Employees so detailed shall perform such duty as is required under such detail, and the time so employed shall count as part of their regular official service.

SEC. 15. The President of the Commission, the Speaker of the Philippine Assembly, and the justices of the Supreme Court shall constitute a board of visitors of the university, whose duty it shall be to attend the commencement exercises of the uni-

versity, and to make visits at such other times as they may deem proper, to examine the property, courses of study, discipline, the state of finances of the university, to inspect all books and accounts of the institution, and to make report to the Governor-General upon the same, with such recommendations as they favor.

SEC. 16. The sum of one hundred thousand pesos is hereby appropriated, out of any funds in the Insular Treasury not otherwise appropriated, to be expended in the discretion of the Board of Regents for the establishment of a college or colleges authorized by this Act the establishment of which may be considered most urgent.

SEC. 17. This Act shall take effect on its passage.

Enacted, June 18, 1908.

HISTORICAL SKETCH

Pursuant to the passage of the foregoing act by the First Philippine Legislature, the work of establishing the colleges thus provided for was begun during the latter part of the year 1908.

The Philippine Medical School, established by a special act on December 1, 1905, and opened to students for the purpose of instruction on June 10, 1907, became the College of Medicine and Surgery of the University on December 8, 1910.

The School of Fine Arts was temporarily established in a house rented for that purpose on Calle San Sebastian, Quiapo, in the city of Manila, and was opened to students in June, 1909.

A location for the College of Agriculture was obtained by the transfer to the Board of Regents of certain lands near Los Baños, in the Province of Laguna, which had already been secured by the Bureau of Education for an Agricultural School. A temporary building was erected on this property, and school work began there in June, 1909.

Buildings for a College of Veterinary Science were erected on land adjoining the animal quarantine station at Pandacan, Manila. The first class was received in June, 1910. In November, 1912, the Veterinary Clinic and Hospital were opened on grounds adjoining San Lazaro Hospital.

The College of Liberal Arts and the College of Engineering were established June 3, 1910, and their classes opened the same month. The College of Liberal Arts had previously existed as a Government school in the Bureau of Education, known by the name of the Junior College of Liberal Arts.

The College of Law was established January 12, 1911.

A course in pharmacy was instituted under the administrative control of the College of Liberal Arts, June 5, 1911. Beginning with the academic year 1914-15 this course, by action of the Board of Regents on February 12, 1914, will be given in the College of Medicine and Surgery under the direction of the School of Pharmacy.

On December 8, 1913, the Board of Regents authorized the organization of the School of Education as a department of the College of Liberal Arts.

The College of Agriculture is situated at Los Baños. All other colleges of the University are in Manila.

The government of the University of the Philippines is intrusted to a Board of Regents, consisting of the Secretary of Public Instruction, the Secretary of the Interior, the Director of Education, the chairman of the Committee of Public Instruction of the Philippine Assembly, the president of the University, an Associate Justice of the Supreme Court, and five additional members who are appointed by the Governor-General. To the Board of Regents is committed the general administration of the University; this includes the management of its finances, the establishment of such colleges and schools as are authorized by law, the conferring of degrees, the establishment of departments of instruction and appointment of teachers, the approval of courses of study and rules of discipline, and the determination of the internal organization of the University in all particulars which are not fixed by law.

The instruction and government of the students of the University are intrusted to the faculties of the several colleges and to the university council.

The faculty of each college consists of the president of the University and those professors and instructors whose departments are represented in it by required or elective studies.

The constitution and powers of the special faculties are defined by section 10 of the University Act.

The body of instructors of each college shall constitute its faculty, and as presiding officer of each faculty there shall be a dean elected from the members of such faculty by the Board of Regents on nomination by the President of the University. In the appointment of professors or other instructors of the university, no religious test shall be applied, nor shall the religious opinions or affiliations of the instructors of the university be made a matter of examination or inquiry.

The constitution and powers of the university council are defined as follows by section 9 of the University Act:

There shall be a university council, consisting of the president of the university and of all instructors in the university holding the rank of professor, associate professor, or assistant professor. The council shall have power to prescribe the courses of study and rules of discipline, subject to the approval of the Board of Regents. It shall fix the requirements for admission to any college of the university, as well as for graduation and the receiving of a degree. The council alone shall have the power to recom-

mend students or others to be recipients of degrees. Through its president or committees it shall have disciplinary power over the students within the limits prescribed by the rules of discipline approved by the Board of Regents.

The Board of Visitors is a body consisting of the president of the commission, the speaker of the Philippine Assembly, and the justices of the supreme court, whose duties are to attend the commencement exercises of the university, to make visits at such other times as may be deemed proper, to make a general examination from time to time of the academic and financial condition of the University, and to make reports to the Governor-General, with such recommendations as they favor.

ADMISSION

Applications for admission are received from four classes of candidates: (a) Persons who desire to begin, in some college of the University, a regular course of study leading to a degree conferred by that college; (b) students who, having already attended some institution of collegiate rank, desire advanced standing in a regular course in some college of the University; (c) special students, not candidates for any degree; (d) graduate students. The conditions of admission for these classes of persons are separately described on the following pages.

Every applicant for admission to the University of the Philippines, in case he has previously attended some other college or university without graduating from it, must file with the Registrar of the University a certificate of his honorable dismissal from that institution.

As evidence that they have satisfactorily pursued the subjects required for admission, candidates may take the entrance examinations given by the University (see next section), or may present certificates accepted by the University as equivalent for all or any part of their subjects.

For privileges extended to candidates presenting on admission more than the required amount of entrance subjects, see page 44.

ENTRANCE EXAMINATIONS

Examinations in all subjects required for admission to the University will be held at University Hall, Manila, June 15–20, 1914.

Permission to take these examinations must be secured from the chairman of the university committee on admission and permission should be obtained at least two weeks before the date of the examination. Permits will be sent by mail upon application. Candidates will be notified of the result of the examination.

No examination of candidates for admission will be held by the University at any other times or places than those announced in this catalogue.

A schedule of the university entrance examinations may be obtained from the chairman of the committee on admissions.

Students deficient in any of the subjects required for admission who may, in spite of such deficiencies, be admitted to any college by the faculty concerned, *must make up all deficiencies within one year.*

SUBJECT MATTER OF THE ENTRANCE EXAMINATIONS

ENGLISH

[5 units]

The examination will consist of two parts:

1. *English Rhetoric and Composition*, 3 units.—The writing of compositions on assigned subjects designed to test the candidates' training in written expression. The examiner will consider particularly the following essentials: Spelling, punctuation, and use of capital letters; corrections of faulty syntax; idiomatic use of words; structure of sentences and paragraphs. The examinations will be based on Lockwood and Emerson's *Composition and Rhetoric*.

2. *English Literature*, 2 units.—(a) Silas Marner and one of the plays of Shakespeare. The play selected for the entrance examination for 1914 is *As You Like It*. (b) *The Lady of the Lake*, *Sohrab and Rustum*, *Ode to Duty*, *Gettysburg Address*, *Macaulay's Essay on Johnson*.

HISTORY

[3 units]

(a) *General History*, $1\frac{1}{2}$ units.—The essential features of Greek and Roman history; the outlines of ancient Oriental history; early Mediæval history to the death of Charlemagne; the rise and fall of the Holy Roman Empire; feudalism; the difference between Mediæval and Modern history; the elements of Modern history to the end of the seventeenth century. Textbook: Myer's *General History*.

(b) *United States History*, $\frac{1}{2}$ unit.—From the European discovery of the new world, with special attention to the development of the British Empire in America during the seventeenth and eighteenth centuries. After the Revolution, only the history and civil government of the United States need be studied. Textbook recommended: Thomas' *United States History*.

(c) *Colonial History*, $\frac{1}{2}$ unit.—A concise summary of the history of colonization in ancient and modern times; the colonial

possessions of great modern colonizing nations; the various forms of colonial government. Textbook: Yule's Colonial History.

(d) *Government*, $\frac{1}{2}$ unit.—American government from colonial times to the present. Textbook: Ashley's American Government. Reference: Woodrow Wilson's The State.

MATHEMATICS

[4 units]

Elementary Algebra, $1\frac{1}{2}$ units [required].—A thorough knowledge of the four fundamental operations with rational expressions; factoring, including the determination of the highest common factor and the solution of equations; common multiples; fractions; the binomial theorem for positive integral exponents (without proof); theory of exponents; radicals, including the extraction of the square root of polynomials and of numbers; the solution of equations of the first degree (numerical and literal, integral, and fractional) involving one or more unknown numbers; quadratic equations, solved both by factoring and by completing the square; and simple cases of simultaneous equations, one of which is quadratic. Textbook recommended: Milne's High School Algebra.

Plane Geometry, 1 unit [required].—The usual theorems and constructions contained in the best textbooks on this subject, including the general properties of plane rectilinear figures, the circle and the measurement of angles, similar polygons, areas, regular polygons, and the measurement of the circle; the solution of original exercises, including loci problems, and the mensuration of lines and plane surfaces. (Textbook recommended: Wentworth-Smith's Plane Geometry, sec. ed.)

Solid Geometry, $\frac{1}{2}$ unit.—The usual theorems and constructions contained in the best textbooks on this subject, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle; the solution of original exercises, including loci problems; and the mensuration of surfaces and solids. Textbook recommended: Wentworth's Solid Geometry.

Plane Trigonometry, $\frac{1}{2}$ unit.—The definitions and relations of the six trigonometric functions as ratios; circular measurement of angles; proofs of the principal formulas, especially those for the sine, cosine, and tangent, of the sum or difference of any two angles, and of double angles and half angles; the product expressions for the sum of two sines or of two cosines; the trans-

formation of trigonometric expressions by means of these formulas, the use of inverse functions, and the solution of right and oblique triangles, together with simple applications. Textbook recommended: Wentworth's Plane Trigonometry.

Review of Arithmetic, $\frac{1}{2}$ unit.

ECONOMICS

[1 unit]

A study of economic conditions in the Philippines, five periods a week throughout the year. Textbook: Miller's Economic Conditions of the Philippines.

LATIN

[4 units]

1. *Latin Grammar and Composition*, 1 unit.—The inflections; the simpler rules for composition and derivation of words, syntax of cases and the verb; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive;

2. *Cæsar and Composition*, 1 unit.—Any four books of the Gallic War (to be read with Greenough, D'Ooge, and Daniel's Second Year Latin).

3. *Cicero*, 1 unit.—Six orations. The four against Catiline, for Archias, and one other.

4. *Virgil*, 1 unit.—Six books of the *Æneid*.

SPANISH

[2 units]

1. *Spanish Grammar and Composition*, 1 unit.—The rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax; mastery of all but the rare irregular verb forms and of the simpler uses of the modes and tenses; exercises containing illustrations of the principles of grammar; practice in translating Spanish into English, and English variations of text into Spanish.

2a. *Elementary Spanish Literature*, $\frac{1}{2}$ unit.—The reading and accurate rendering into good English of from 200 to 250 pages of graduated texts, with translation into Spanish of easy variations of the sentences read.

2b. *Advanced Spanish Literature*, $\frac{1}{2}$ unit.—The reading, in addition to the elementary work, of from 400 to 500 pages of

modern prose from different authors (a total, with the elementary requirement, of 600 to 750 pages).

PHYSIOGRAPHY

[$\frac{1}{2}$ unit]

The study of physiography or physical geography should occupy five periods a week for one-half year. In order to attain the best results, a considerable portion of the time should be spent in making observations and sketches in the field. Special attention should be given to the action of atmospheric agents upon the earth and to local meteorology.

The examination is intended to test the student's knowledge of the various agencies and forces which affect the surface of the earth, rather than to emphasize a mass of more or less isolated facts. Textbook: Davis's Physical Geography.

COMMERCIAL GEOGRAPHY

[$\frac{1}{2}$ unit]

As outlined by the 1912 bulletin on the secondary course of study, issued by the Director of Education.

PHYSICS

[1 unit]

Students offering physics for entrance must show an acquaintance with the more important phenomena and with the principles involved in their explanation. They must, in addition to a year's work with the textbook, have completed a year of laboratory practice and must be prepared to work simple numerical problems upon the laws of falling bodies; upon the pendulum; upon properties of liquids and gases, including the determination of density; upon thermometry and calorimetry, including specific heats of fusion and liquefaction; upon the relations of current and electromotive force and resistance; upon velocity, wave length, and resonance in sound; upon refractive indices, focal lengths, and the size and position of images in optics. The student must understand and be able to use the metric system in measurement and computation.

The laboratory work offered should be chiefly quantitative in character, and should consist of at least forty exercises or experiments of the character given in Nichols' "Outlines of Physics," or other works similar to this in grade and method.

The laboratory work prescribed above must have been performed by the student individually, in evidence whereof he must present his laboratory notebook at the time of examination. He must, moreover, be prepared to describe intelligently the method pursued and the results obtained in the experiments which he has performed. Textbook: Millikan and Gale's First Course in Physics.

ZOOLOGY

[1 unit]

Elementary zoölogy should be a study of the natural history, external characters, and relationship of animals, not a course in anatomy. Students ought to make a collection of at least 200 species of insects, representing not less than 12 orders, and of 100 species belonging to other classes than insects. The student should classify his collection as far as the orders. It should be born in mind that no textbook exists which is adapted to Philippine zoölogy, and therefore the adopted text must be a guide to work and should not be slavishly followed. The collection should serve as a basis for observation on habits, environment, and adaptations, and also furnish part of the material needed for detailed laboratory study. The course should occupy five double periods a week for one year, divided as follows:

Invertebrate Zoölogy (28 weeks).—Three laboratory periods a week should be devoted to the observation of living and preserved forms, and to a limited amount of dissection.

This laboratory practice should at least include a study of all of the following: Amœba, vorticella, paramœcium, euglena, sponge, sea anemone, jelly-fish, coral, liver-fluke, tapeworm, ascaris, hookworm, lingula, starfish, brittle-star, sea-urchin, sea cucumber, earthworm, leech, prawn, crab, hermit-crab, barnacle, cyclops, locust, cockroach, mantid, dragon-fly, electric-light bug or squash-bug, scale, cicada, fly, mosquito, butterfly, coconut beetle, wasp, ant, termite, scorpion, spider, tick, centipede, clam or mussel, snail or slug, squid.

Vertebrate Zoölogy (12 weeks).—A study of the external characters, classification, geographical distribution, and natural history of fish, amphibia, reptiles, birds, and mammals, with a special consideration of Philippine forms. Dissection should be limited to one form, either a fish, lizard, or rat.

The candidate must present his laboratory notebook, certified by the teacher of the course, at the time of the examination. Text recommended, Linville and Kelly, Elementary Zoölogy.

BOTANY

[1 unit]

Students offering botany for an entrance subject should have devoted at least five periods a week for one year to a course equivalent to that outlined by Copeland in Bulletin No. 24 of the Bureau of Education. Of this time two or more periods each week should be double periods given to laboratory or field work.

In the laboratory and field work careful notes and drawings should be made. These should be made directly from plants. In the preparation of an herbarium of fifty species or more, the student should distinguish clearly between notes obtained in the field and from the plants, and information from lectures and books.

The candidate must present his laboratory notebook, certified by the teacher of the course, at the time of the examination.

GENERAL BIOLOGY

[1 unit]

Students offering general biology for an entrance subject should have devoted at least five double periods a week for one year to the course. Of this time at least three periods each week should be double periods given to laboratory or field work. Laboratory work should be done upon plant and animal specimens and a notebook should be carefully kept of all laboratory work.

The candidate must present his laboratory notebook, certified by the teacher of the course, at the time of the examination.

Textbook: Hunter's Essentials of Biology.

LABORATORY NOTEBOOKS

The notebooks required of all candidates for admission must contain the student's own record of his laboratory experiments, written up in the laboratory, and be presented at the time of the examination. Upon the cover of every notebook there must be attached a statement, signed by the teacher, similar in form to the following:

I hereby certify that the accompanying notebook is the original record of the experiments performed by.....
..... in the laboratory of
the School.

All notebooks will be returned to the candidate upon application at any time within one year after the examination.

REQUIRED ENTRANCE SUBJECTS

	Units.
English	5
History	2
Mathematics ^a	2½
Latin ^b	1
Botany or general biology.....	1
Physics	1
Total	12½

Fifteen units are required for entrance to the collegiate departments of the university. Such subjects as colonial history, government, zoölogy, chemistry, solid geometry, plane trigonometry, French, German, advanced Latin, or Spanish may be offered as optional entrance subjects.

SCHOOL CERTIFICATES

Certificates of work in public and private schools, in or out of the Philippine Islands, may be accepted in lieu of examinations for subjects covered by the certificates, but only on condition that the applicant has completed a full course, has been duly graduated after at least one year of continuous work in the school, always provided that the university authorities are satisfied regarding the standing of the school.

The application for the admission of a student by certificate must give the grades received by the student for the secondary school subjects, and must be indorsed by the principal of the school.

This application must be accompanied by full and specific information with regard to the completeness and thoroughness of the studies and courses in which instruction is given. If a catalogue or circular is published, a copy thereof should also be furnished.

Certificates will be accepted from provincial high schools giving a complete four-year course, according to the outline of courses published by the Director of Education, and those private schools which are certified by the Secretary of Public Instruction as doing work of an equal standard: *Provided that*—

(1) The status of every undergraduate student is probationary during his first year of residence in the University, and

^a Students wishing to enter either of the engineering courses, preparatory or regular, must present 3 units of mathematics, including algebra, plane geometry and solid geometry.

^b Not required for entrance into any of the engineering courses.

his final allowance of matriculation credit will depend upon his work during this probationary year.

(2) The scholarship records in the University of the Philippines of the first-year students, from each of the accredited schools, will be kept in such a way as to show the standing of the school in scholarship, as reflected by its representatives in the University. This record will be made use of in determining the status of the school as a possible candidate for future accrediting.

(3) The University does not engage in advance always to accept the certificates of any private schools. The previous acceptance of such certificates merely raises the presumption that similar certificates may be accepted again, but does not establish a permanent right to such acceptance. Certificates from private schools whose students prove to be imperfectly fitted will ultimately not be considered.

Graduates of the secondary course in the Philippine School of Arts and Trades will be admitted without conditions to the College of Engineering and to the preparatory engineering course, College of Liberal Arts. They will, however, be required to take courses in history and other academic subjects in place of some courses in mathematics, drawing, and shop. In this way they will satisfy all requirements for entrance to and graduation from the University.

Recommended graduates of secondary schools who wish to postpone their entrance to the University should send their recommendations, with a specific request for extension, to the secretary of the University. Extension may be granted for one year, with the possibility of renewal, upon request. Recommendations become invalid if not presented within twenty months after graduation.

GENERAL PROVISIONS

All diplomas, certificates, and statements offered in lieu of university entrance examinations should be sent by mail to the secretary of the University, as early as possible in the summer before the opening of the school year; and to insure consideration, should reach him at least by the 15th of May.

Application for credit in all subjects for which credit is desired must be made at the time of the admission of the applicant; it should not be postponed to any later date in his course, and no certificate will be considered after the end of the first semester of attendance.

Certificates are accepted for the subjects of physics, botany, zoölogy, and general biology only on condition that the applicant shall send to the secretary his notebook, with the teacher's statement attached, as described in the foregoing account of the University entrance examinations in these subjects.

The notebook will be returned to the candidate upon application at any time within one year.

SURPLUS ENTRANCE CREDIT

Applicants for admission who pass examinations or present acceptable certificates in more subjects than are required by the college to which they are admitted, will not receive surplus entrance credit for such subjects, unless the faculty is satisfied that the work done is equal to the standard required in its own college. Under no circumstances will entrance credit in physics, chemistry, physiography, or biology, carry with it university credit in any course in those subjects.

ADMISSION TO ADVANCED STANDING

A student who, having already attended some college or university, desires advanced standing in a regular course in some college of the University of the Philippines, should consult the directions given in this catalogue under the college in question, and should forward to the dean of the college at as early a date as possible an official certificate from the college or university already attended, of (1) his honorable dismissal, (2) entrance examinations in detail, (3) his terms of attendance with the amount of work which he has completed, and (4) the courses pursued for which he desires credit. He should send also a catalogue of the institution, writing on it his name, and marking the entrance requirements which he has satisfied and each subject which he has completed.

ADMISSION OF SPECIAL STUDENTS

Persons of the requisite age may be admitted as special students, without examination, provided they give evidence of ability to do special work in the University. They must be recommended for admission by the University Committee on Admission, the faculty concerned and the professor in charge of the department of study in which they desire to elect. Special students are subject to the same regulations in regard to examination and number of hours as regular students.

REGISTRATION EACH SEMESTER

At the beginning of each semester every student must obtain a certificate of registration from the secretary and no student, after being once admitted to the University, will be allowed to register after the close of the registration period, except by special permission of the faculty concerned.

REGISTRATION OF STUDENTS

Students in all undergraduate courses register for the work in each college at the time prescribed by their college. No credit will be allowed for work not so registered. To promote prompt registration, a fee of ₱5 is charged those who seek to register later than the specified date of registration unless previously excused by the president of the University. Changes in registration will not be allowed except by special permission of the faculty concerned, in which case any registration will be subject to a fee of ₱5.

No person will be admitted as a student to the exercises of any professor or instructor except as authorized by the official certificate of registration furnished to each student by the dean or secretary subject to the approval of the proper adviser.

Every student is required to attend all his class exercises and to satisfy the instructor in each of his courses of study, in such way as the instructor may determine, that he is performing the work of the course in a satisfactory manner.

Any instructor, with the approval of the dean, may at any time exclude from his course any student who, in his judgment, has neglected the work of the course. Any student thus excluded shall be recorded as having failed in the course of study from which he is excluded, unless the faculty shall otherwise determine.

CREDITS

One university hour of credit is one lecture or recitation each week for the period of a complete semester.

In all courses, two and a half to three hours of laboratory work, and, in the technical courses, three hours of drafting or shopwork, are regarded as the equivalent of one recitation or lecture.

FEES AND TUITION

A tuition fee of ₱40 a semester is charged by the College of Law.

Students of other colleges taking courses in the College of

Law amounting to less than ten units a semester may be charged a tuition fee not exceeding ₱4 a unit a semester.

There is no charge for tuition in other colleges of the University for residents of the Philippine Islands. All students who are not residents of the Philippine Islands shall pay a tuition-fee of ₱150 a year.

A fee of ₱5 per semester may be charged in all laboratory or technical courses, giving three units of credit for a semester, and ₱10 per semester in those giving more than three units credit for a semester.

An athletic fee of ₱1 per semester is charged every student in the Colleges of Liberal Arts, Medicine and Surgery, Engineering, Veterinary Science, and Law.

Each student of the Colleges of Liberal Arts, Engineering, and Veterinary Science will be required to deposit ₱10 in addition to the regular fees with the secretary on matriculation. This deposit is for the purpose of covering any losses of apparatus, supplies, books, etc., or any damage to university property which may properly become a charge against the students.

In the College of Agriculture each student will be required to make a deposit of ₱15, with the exception of "pensionados" and those supporting themselves by rendering service to the college.

In the College of Medicine and Surgery each student will be required to make a deposit of ₱20.

ATHLETIC ASSOCIATION OF THE UNIVERSITY OF THE PHILIPPINES

Every student of the Colleges of Liberal Arts, Medicine and Surgery, Engineering, Veterinary Science, and Law will pay an athletic fee of ₱1 per semester, which will be turned into the treasury of the athletic association.

Each student of these colleges becomes, upon payment of this fee, a member of the athletic association. Payment of the fee entitles the students to admission to all university athletic contests. The government of this association is vested in a board of control, which shall consist of a president, a secretary-treasurer, and one member, elected by the university council, who shall be members of the faculties of the University, and three student representatives from the colleges of the University, elected by the association. The board of control shall supervise the management and finances of every athletic organization representing the University.

GRADES OF SCHOLARSHIP

The results of examinations, together with term work when a record of the latter is kept, will be ranked and reported in five grades, 1, 2, 3, 4, 5. The first grade denotes marked excellence. The second grade indicates that the student's work has been thoroughly satisfactory. The third grade denotes a pass. Courses in which students have obtained a fourth grade will not be credited to them, except upon the condition of passing a second examination. The fifth grade indicates failure and the necessity of repeating not only the examinations of a course, but also the regular work. The report in case of absence from an examination, or of failure to perform any of the allotted work in a given course, is *incomplete*. Work so reported must be made up within a year.

The entrance examinations are ranked and reported in five grades, corresponding with the five grades used for reporting upon university courses. In the case of entrance examinations, neither a fourth grade (condition) nor a fifth (failure) may be removed until the next scheduled entrance examination.

Second examinations are permitted only for the purpose of removing deficiencies. Students who have received second grade or third grade in a given course are not allowed such examinations for the purpose of improving their grade.

CONDITIONS AND FAILURES

For the removal of conditions, students shall have the privilege of taking the regular mid-year or annual course examinations in the subjects in which they are conditioned, or the special examinations for the removal of conditions only, held regularly at the beginning of each semester. Examinations may be held at other times only by the special permission of the faculty and on payment of a fee of ₱10. *All conditions must be made up within one year from the time at which they are incurred.*

Opportunity for the removal of matriculation deficiencies is offered each year at the time of the entrance examinations.

Any undergraduate student who is reported as having failed in a course, or who, after being conditioned, does not pass a second examination for the removal of the condition, will be required to repeat every such deficient subject with the class that next takes it; unless, on recommendation of the officer of instruction in charge, the faculty shall permit him to review a subject in which he is thus deficient with the assistance of an acceptable

private tutor; in which case he will be excused from attending the recitations, but will be required to take the regular examinations at the end of the year or half year.

No student will be recommended for a degree until all deficiencies incurred at any time during the course have been finally and satisfactorily removed, and the secretary's report shows a completely clear record. All examinations of candidates must have been passed prior to the meeting of the university council appointed for recommending candidates for degrees.

LEAVE OF ABSENCE AND HONORABLE DISMISSAL

Prolonged leave of absence must be sought by written petition to the proper faculty, and the petition must specify the length of time (not more than a year) and the reason for which the leave is desired. An indefinite leave of absence will in no case be granted.

A student must apply for leave to be absent, or for an excuse for having been absent from any college exercise other than an examination, to the officer of instruction in charge of such exercise; unless, for unavoidable cause, the student is obliged to absent himself from all college exercises for one day or for several days, in which case the dean will issue a written excuse for leave. Leave to be absent from an examination must be sought by written petition to the proper faculty.

Leave to be absent or an excuse for absence does not, in any case, absolve the student from doing the work covered by his class during his absence, to the satisfaction of the instructor in charge.

Students who discontinue any of their work without formal leave of absence do so at the risk of having their registration privileges curtailed or entirely withdrawn.

Honorable dismissal, indicating that the student, while in good standing, has voluntarily severed his connection with the University, should be sought by written petition to the proper faculty. Without such petition, no record of honorable dismissal will be made.

DEGREES

FIRST DEGREES

The degrees of Bachelor of Arts ("*Bachiller en Artes*"), Bachelor of Agriculture, Bachelor of Science, Graduate in Pharmacy, Doctor of Veterinary Medicine, and Bachelor of Science in Civil Engineering are conferred after the satisfactory completion of the respective courses.

SECOND DEGREES

The degree of Master of Arts will be granted upon graduation from a three years' course of specialized study in the Senior College of the College of Liberal Arts, or under the direction of the committee of the university council on graduate study.

The degree of Master of Science in Civil Engineering will be granted upon graduation from a five years' course in the College of Engineering.

The degree of Bachelor of Law will be granted upon graduation from a three years' course in the College of Law.

The degree of Bachelor of Science in Pharmacy will be granted on graduation from a four years' course in the School of Pharmacy.

The degree of Doctor of Medicine will be granted upon graduation from a five years' course, and the degree of Doctor of Public Health after a further course of two years' graduate study in the College of Medicine and Surgery.

EXPENSES

The expense of textbooks, instruments, etc., varies from ₱25 to ₱100 per annum.

The cost of living in Manila varies from ₱16 to ₱25 per month.

A fair estimate of the yearly expenses is from ₱250 to ₱500, but much depends on the personal tastes of the student.

COURSES FOR GRADUATES

Under the authority of the Board of Regents, graduate students may register in the University and pursue their studies under the direction of a committee of the university council.

THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE.

Students who satisfactorily complete two years of well-chosen work in addition to the requirements now in force for the degree of Bachelor of Arts in the University of the Philippines, or who demonstrate that their training has carried them two years beyond these requirements, will be admitted to candidacy for master's degrees.

Each student must have one major subject of study and, in choosing his course, must have the approval of the head of the department in which his major study is chosen. Before being admitted to candidacy for the degree, he must have twenty credits each in his major and in one other department, and must have a reading knowledge of French or German. Each application for admission to candidacy will be voted upon individually by the committee on graduate study.

The general conditions for the granting of master's degrees after admission to candidacy are:

- (a) At least one college year of resident study.
- (b) Presentation of a satisfactory thesis which represents one-third of the work of a year and which shall be worthy of publication.
- (c) Completion of at least ten units in the department in which the thesis is prepared.
- (d) There must be a total of thirty-six credit units of graduate work in the major subject.
- (e) Completion of a total of thirty units in all subjects during the final year.
- (f) Completion of at least ninety units of senior college courses.

Persons satisfactorily complying with these conditions will be granted degrees as follows:

- (a) The degree of Master of Science in case the major subject, in which the thesis has been prepared, is scientific or technical.

(b) The degree of Master of Arts in case the major subject is one of those usually recognized as "the humanities."

THE DEGREES OF DOCTOR OF TROPICAL MEDICINE AND DOCTOR OF PUBLIC HEALTH

For the conditions required for admission to candidacy for these degrees, see page 166.

FURTHER OPPORTUNITIES FOR GRADUATE STUDY

For those who have received the Master's degree, there are exceptional opportunities in several departments to do graduate or research work.

Botany.—The herbarium of the Bureau of Science, which is rapidly being increased, now contains over 125,000 mounted specimens, of which approximately two-thirds are Philippine and the remainder extra-Philippine. The material is arranged by families, genera, and species, so that everything on hand is readily accessible for study. This collection, with the accompanying library facilities of the Bureau of Science, forms one of the best centers for taxonomic research outside of Europe and North America.

The extra-Philippine material is for the most part from the Tropics, and in developing this part of the herbarium especial attention has been given to securing representative botanical material from the Indo-Malayan region in general; the herbarium contains exceedingly valuable collections of plants from India, southern China, Formosa, Cochin China, the Malay Peninsula and Archipelago, Australia, and Polynesia.

The Philippine collection is the largest and the most valuable extant, containing representatives of nearly all the species definitely known to grow in the Archipelago. It is especially rich in types and cotypes. The great bulk of the herbarium is made up of the phanerogamic collection, but the cryptogamic section includes exceedingly extensive collections, for the most part identified, of ferns and fern allies, as well as large collections of named mosses, scalemosses, fungi, lichens, and algæ.

The Bureau of Science is thoroughly equipped for those electing to carry on work in plant physiology and in systematic or economic mycology. The botanical library is very extensive and contains a practically complete set of books applying to the flora of the Philippines and to the Indo-Malayan region as a whole. The list of general botanical publications is extensive, and the library is rich in sets of periodicals, proceedings of societies, etc.

The College of Agriculture at Los Baños is situated in a remarkably favorable spot for botanical work. The college buildings are at the very foot of Mount Maquiling, and not distant from the shore of Laguna de Bay.

Maquiling rises to a height of about 1,500 meters above the lake, and the trip to the summit and return can readily be made in a day. Within easy reach is the much higher mountain, Banajao. "From the lake to the mossy forest on the summit of Maquiling, every great tropical formation, except the mangrove and the alpine scrub, is present within convenient reach. Aside from the large number of introduced plants on the campus, there is an extraordinarily large local flora; and this vegetation never rests."

Chemistry.—The privileges of the excellent research equipment of the Bureau of Science and the facilities for advanced work offered by its staff and by the library are open to advanced students of chemistry who desire to complete their courses for advanced degrees or to prepare a thesis on chemical subjects. The privilege of such study will be granted upon application to the Board of Regents for admission to the course and upon application to the Director of the Bureau of Science for admission to the laboratories of the latter institution. The work of the Bureau of Science appears in the Philippine Journal of Science, which is published by the Bureau of Science of the Philippine Government, and investigators will be given every opportunity for carrying on their work and for publication. So many topics exist which especially relate to conditions in the Tropics that this opportunity offers an enticing field to chemists desiring to broaden their training.

Zoölogy.—The zoölogical laboratory is situated within a few hundred yards of the shore of Manila Bay. Many places of interest to zoölogists are easily accessible by short steamer journeys. A marine biological survey has been instituted by the University and the Bureau of Science. This was located during the past year at Taytay, Palawan. Investigators who desire to accompany the field expeditions will be welcomed. The Bureau of Science has large and fairly complete collections of Philippine birds, reptiles, fishes, and insects. The scientific library contains nearly all of the principal sets of zoölogical literature.

History.—The Philippine Library, which includes the Tavera, Retana, Compañía Tabacalera, and Zulueta collections, possesses by far the best collection of Filipiniana in existence; and

as the early history of the Philippines was closely connected with the beginning of European interest in the Far East, it is probable that in this field also the library leads. The convents of the religious orders contain records of the first missionary efforts in Asia and the Government archives have many papers bearing on early political affairs. It is believed that nowhere else will the student find such opportunities in primary sources for studying the beginnings and progress of European and American influence in the Far East, a subject of increasing interest since the modernizing of the Orient.

COURSES OF INSTRUCTION

The following courses will be given in Manila. For courses given at Los Baños see the announcement of the College of Agriculture, page 232.

ANATOMY

(See announcement of the College of Medicine and Surgery, page 128.)

ANIMAL HUSBANDRY

SAMUEL BERT DURHAM, B. S., Assistant Professor of Animal Husbandry.
BIENVENIDO M. GONZALES, B. Agr., Assistant in Animal Husbandry.

Animal Husbandry 1.—This course is designed to meet the needs of the veterinarian in the Philippines.

Types and breeds of farm animals. The origin, development, adaptability, and characteristics of the leading breeds of farm stock and poultry will be studied by students and a limited amount of score card work given. The chief object of this course is to demonstrate the relation of conformation to function in various types of farm animals. Students will be given practice in determining the age and weight of these animals. This work will be given in lectures and outdoor demonstrations.

Feeds and feeding: The elements of animal food and their uses; assimilation; composition of feeds, and compounding of rations.

Prescribed for students in the College of Veterinary Science (third year) and in the agricultural preparatory course of the College of Liberal Arts (second year).

[3 hours, first semester; 3 hours, second semester; 6 units. Assistant Professor DURHAM.

For other courses see College of Agriculture, page 232.

BACTERIOLOGY

(See announcement of the College of Medicine and Surgery, page 136.)

BOTANY

ELMER DREW MERRILL, M. S., Associate Professor of Botany and Chief of Department of Botany.

WALTER ROBERT SHAW, Ph. D., Assistant Professor of Botany.

— — —, Instructor in Botany.

Courses in botany will be offered to meet the needs of (a) students preparing to become teachers of biological sciences in the high schools of the Philippines; (b) students in the course in pharmacy; (c) students desiring work in science without reference to special application in their chosen fields of labor.

For those intending to teach high-school botany two semesters of work will be given in the first year of the college course. This will be followed by 20 unit hours of botany courses to be taken during the third and fourth years of the college course, to include a thesis to be prepared in the final year, and to lead to the degree of Master of Arts. Approved field work during a major portion of two vacations will be a requirement for this degree. The completion of a high-school course, including a year of work in botany, is a prerequisite to admission to any of these courses as a candidate for the advanced degree. The flora of Manila affords at all seasons an abundance of fresh material for the study of tropical plants, and the climate permits, with a minimum of difficulty, the cultivation of material under controlled conditions for study in the laboratory, under glass, and in the garden.

For students of pharmacy two semesters of work will be offered in the first year, Botany 3 and 4. This is to be followed by courses in pharmacography and pharmacognosy in the second and third years.

Botany 1. Elementary Botany.—Laboratory work, lectures, and recitations covering the essentials of elementary botany.

[9 hours, second semester; 3 units. Associate Professor MERRILL.

Botany 2. Morphology and Classification of Plants.—A course designed primarily for students of pharmacy, the work in the first semester being a general course in the morphology and classification of the cryptogams and the gymnosperms, in the second semester the morphology and classification of the spermatophytes. In the second semester illustrative material for class work will be drawn from the local flora, lectures, and laboratory work to be supplemented by studies in the field and in the herbarium; each student will be required to prepare a small herbarium. One object of the course is to give students of pharmacy a broad conception of the principles of taxonomy, and the relationships of various groups of plants, as a basis for future work in botany and pharmacognosy.

Textbooks: Kraemer, Botany and Pharmacognosy, supplemented in the second semester by Merrill: Flora of Manila.

[9 hours throughout the year; 6 units. Associate Professor MERRILL.

Botany 3. Elementary Plant Physiology.—Laboratory and field work with reading and occasional lectures on the physiology of vascular plants. A course designed to supplement the high-school course in botany. Open to students who have had high-school botany or Botany 1 and 2.

Textbook: Coulter, Barnes and Cowles, Textbook of Botany. Part II.

[9 hours throughout the year; 6 units. ————]

Botany 4. The Natural History of Plants.—A course designed for those students who are not sufficiently prepared to take Botany 3 and 4, to include the elements of botany.

[9 hours throughout the year.]

Botany 5. Plant Morphology.—First semester: Morphology and classification of the algæ, fungi, liverworts, and mosses. Types of the principal groups will be studied in the laboratory. Lectures giving an outline of the classification of the groups and a discussion of their origin.

Botany 6. Plant Morphology.—Second semester: Morphology and classification of the ferns, fern-allies, and seed plants. A study of the life histories of a few representatives of groups of vascular plants, including fertilization and pollination and the development of organs and tissues. Lectures on the morphological homologies and the phylogeny of the groups.

Textbook: Coulter, Barnes and Cowles, Textbook of Botany. Part I.

[9 hours throughout the year; 6 units. Assistant Professor SHAW.]

Botany 7. Vegetable Histology and Pharmacognosy.—About one-third of the first semester will be occupied with general histology of the vegetative structures of seed plants. The remainder of the year will be devoted to a study of crude vegetable drugs of the United States Pharmacopœia. The roots, rhizomes, tubers, and bulbs will be taken up in the first semester, and in the second semester the woods, barks, leaves and leaflets, herbs, and flowers. Each student will be provided with a compound microscope for use in the laboratory. Identification will receive careful attention, and there will be frequent tests of ability to determine drugs. Lectures on the main facts of the pharmacography of each drug.

Textbooks: Kraemer, Botany and Pharmacognosy; Greenish, Microscopical Examination of Foods and Drugs.

[9 hours throughout the year; 6 units. Assistant Professor SHAW.]

Botany 8. Pharmacognosy.—A study of the fruits, seeds, and miscellaneous crude vegetable and animal drugs of the United States Pharmacopœia.

[9 hours; first semester; 3 units. Assistant Professor SHAW.]

Botany 9. Pharmacognosy; Powdered Drugs and Foods.—Microscopical examination of the more important powdered drugs and foods. Practice in the determination of unknown powders and the recognition of adulterants.

[9 hours second semester; 3 units. Assistant Professor SHAW.

Botany 10. Vegetable Histology.—A systematic study of the tissues of vascular plants. Methods of section-cutting and mounting, and the use of reagents and stains.

[First semester; 3 units. Assistant Professor SHAW.

SENIOR COLLEGE COURSE

Botany 11. Vegetable Physiology.—Lectures and laboratory work on the physiology of the vascular plants.

[First semester, 6 hours; second semester, 10 hours; 7 units. ————.

Botany 12. Economic Botany.—A study of the classification and ecology of some of the more important cultivated plants.

Botany 13. Plant Diseases.—The fungus and bacterial diseases of cultivated plants and the means of preventing or checking them.

Botany 14. Botanical Methods.—Practice in growing algæ, fungi, and ferns for use in the classroom. The collection and preservation of material for use in high-school laboratory courses.

Botany 15. Ecology.—(1) The collection and classification of seed plants to furnish a basis for the study of the ecology of a limited area, including a wide range of plant formations. (2) A study of ecological factors in plant distribution. These are vacation courses to be given at some base from which a series of diverse plant formations may be reached.

[Vacation.

CHEMISTRY

HARRY DRAKE GIBBS, Ph. D., Associate Professor of Chemistry and Chief of the Department.

AUGUSTUS P. WEST, Ph. D., Assistant Professor of Chemistry.

MARIANO VIVENCIO DEL ROSARIO, Phar. D., M. S., Assistant Professor of Chemistry.

ALBERT HUNTINGTON WELLS, B. A., Instructor in Chemistry.

FRANCISCO AGCAOILI, B. A., Instructor in Chemistry.

GUY CLINTON, B. S., Instructor in Chemistry.

The chemical laboratories are situated in the new building of the College of Medicine and Surgery and also occupy the entire space of a recently remodeled building in the grounds of the Philippine General Hospital. The desks, apparatus, equipment, and lecture rooms are well designed and the facilities for work are excellent.

The courses of study are designed to meet the necessary requirements of students in the various colleges of the University and for students specializing in chemistry. For students who desire to follow chemistry as a profession, a four-year course leading to the degree of Bachelor of Science is offered. This course is arranged to prepare competent men to carry on the chemical work of the Islands, such as that arising in the sugar mills, oil refineries, distilleries, essential-oil plants, testing and analytical laboratories, and the Government work of the inspection of purchases, food supplies admitted to the Islands, and in agricultural and other lines of research. A fifth year of study leading to the degree of Master of Arts in Chemistry is offered. Students completing the fifth year will be eligible for positions in research laboratories.

Chemistry 1. Elementary general inorganic chemistry.—Lectures, recitations, and laboratory work.

[9 hours throughout the year; 6 units.

Chemistry 2. The compounds of carbon.—Lectures, recitations, and laboratory work.

[9 hours throughout the year; 6 units.

Chemistry 3. Qualitative analysis, inorganic.—Lectures, recitations, and laboratory work.

[9 hours first semester; 3 units.

Chemistry 4. Quantitative analysis, organic.—Lectures, recitations, and laboratory work.

[9 hours second semester; 3 units.

Chemistry 5. Physical chemistry.—Lectures, recitations, and laboratory work. Prerequisites 1, 2, 3, and 4, or 3 and 4 may be taken simultaneously with 5.

[9 hours throughout the year; 6 units.

Chemistry 6. Principles of chemistry.—A lecture course for advanced students.

[2 hours throughout the year; 4 units.

Chemistry 7. Organic and inorganic preparations.—A course for advanced students. Lectures and laboratory work. Prerequisites 1, 2, 3, and 4.

[9 hours throughout the year; 6 units.

Chemistry 8. Analytical chemistry.—A course for advanced students. Lectures and laboratory work. This course is designed to meet the needs of each student, and will include work in analysis of minerals, cements, sugars, foods, organic analysis, electrolytic methods, gases, waters, drugs, etc. Students are allowed to register for as many hours as possible in this course,

the minimum being nine hours per week laboratory work; three hours laboratory work through one semester equals one unit. Prerequisites 1, 2, 3 and 4.

Chemistry 10. History of chemistry and chemical industries.—Lectures and seminar.

[2 hours throughout the year; 4 units.

CIVIL ENGINEERING

CLARENCE G. WRENTMORE, C. E., Professor of Engineering, Chief of Department.
WALTER CHARLES REIBLING, Ch. E., Associate Professor of Chemical Engineering.
HERMAN W. REYNOLDS, M. E., Associate Professor of Engineering.

Civil Engineering 1. Structural Mechanics.—Must be preceded or accompanied by Mathematics 6E.

[5 hours, first semester; 5 units.

Civil Engineering 2. Testing Laboratory.—The ordinary tests of the common materials of construction. Must be preceded by Course 1.

[Two half days, second semester; 2 units.

Civil Engineering 3. Testing Laboratory.—Continuation of Course 2.

[Two half days, first semester; 2 units.

Civil Engineering 4. Theory of Structures.—Analysis of forces in simple roof and bridge trusses. Analytical and Graphical methods. Textbook and problems. Must be preceded by Course 1.

[3 hours, first semester; 3 units.

Civil Engineering 5. Theory of Structures.—Continuation of Course 4. Analysis of forces in framed structures. Lectures, text-book, problems. Must be preceded by Course 4.

[5 hours, first semester; 5 units.

Civil Engineering 6. Theory of Structures.—An advanced elective, a continuation of Course 5. Secondary stresses, statically indeterminate structures. Lectures, textbook, collateral reading, problems. Must be preceded by Course 5.

[3 hours, first semester; 3 units.

Civil Engineering 7. Design of Structures.—Simple problems in roof and bridge design. Must be preceded or accompanied by Course 4.

[5 afternoons, second semester; 5 units.

Civil Engineering 8. Design of Structures.—Continuation of Course 7. Must be preceded or accompanied by Course 9.

[3 afternoons, second semester; 3 units.

Civil Engineering 9. Masonry and Foundations.—Concrete, plain and reinforced, masonry, foundations, retaining walls, dams. Lectures, textbooks, collateral reading, problems. Must be preceded by Course 5.

[5 hours, second semester ; 5 units.

[NOTE.—After the year 1914–15 this course will be given in two parts. 9a, 3 units; and 9b, 2 units.]

Civil Engineering 10. Hydraulics.—Theory of mechanics of fluids. Flow and measurement of water, water motors, and pumps. Lectures, textbook, and problems. Must be preceded by Course 1.

[4 hours, second semester ; 4 units.

Civil Engineering 11. Irrigation.—Rainfall, run-off, irrigation works, irrigation law, river training and control. Must be preceded by Courses 9 and 10 and by Law 1E.

[5 hours, first semester ; 5 units.

Civil Engineering 12. Municipal Engineering.—Roads and streets, water supply, fire protection, sewerage, garbage disposal, and sanitation. Must be preceded by Courses 2, 4, and 10, and Biology 20E, and accompanied by Course 3 and Law 1E.

[5 hours, first semester ; 5 units.

[NOTE.—After the year 1914–15 this course will be given in two parts. 12a, 2 units; and 12b, 3 units.]

Civil Engineering 13. Principles of Mechanism.—Kinematics of machine elements, gearing, linkages, belting and trains, graphical statics, forces, reactions, and efficiencies. Must be preceded by Mathematics 6E.

[5 hours, first semester ; 5 units.

Civil Engineering 14. Heat Engines.—Fuels and combustion, steam engines and boilers, steam turbines, internal combustion engines, gas producers. Must be preceded by Courses 13, Chemistry 5 and Physics 6.

[5 hours, second semester ; 5 units.

Civil Engineering 15. Thermodynamics.—An elective course in mechanics of gases, saturated and superheated vapors. With reference to heat engines, compressed air machinery, and refrigeration. Must be preceded by Course 14.

[2 hours, second semester ; 2 units.

Civil Engineering 16. Electrical Machinery.—Dynamios, electrical machinery, and transformers. Must be preceded by Physics 6E.

[4 hours, first semester ; 4 units.

Civil Engineering 17. Power Plants and Transmission—Elective.—Steam, gas, and hydroelectric plants, mechanical and electrical transmission. Lectures, textbooks, problems. Must be preceded by Courses 14 and 16.

[3 hours, second semester; 3 units.

Civil Engineering 18. Design of Power Plants—Elective.—Continuation of Course 17 and application to special problems.

[5 afternoons, second semester; 5 units.

Civil Engineering 19. Seminary.—Special studies and reports on engineering subjects and projects of current historical and biographical importance.

[3 hours, first semester; 3 units.

ECONOMICS

See "History, Economics, and Sociology."

EDUCATION

FRANCISCO BENITEZ, B. S., Instructor in Education.

[3 hours throughout the year; 6 units.

Education 1.—History of Education; the growth and development of educational doctrine into its modern form.

[3 hours, first semester; 3 units.

Education 2.—Principles of Education; a study of the fundamental ideas and their application to the more common subjects of the course of study.

[6 hours, second semester; 6 units.

Education 3.—Principles and Problems of Secondary Education; an interpretation of the problems and aim of education from the standpoint of the high school.

[3 hours throughout the year; 6 units.

Education 4.—Educational Administration; with special reference to the routine of the public school system of the Philippine Islands.

[2 hours throughout the year; 4 units.

Education 5.—Practice Teaching, under supervision of the School of Education.

[3 hours throughout the year; 6 units.

ENGLISH

RALPH LESLIE RUSK, Acting Chief of the Department.

WILLIAM TATUM HILLES, Instructor in English.

CHARLES DeGUIRE CHRISTOPH, Instructor in English.

GEORGE W. ST. CLAIR, Instructor in English.

English 1. Composition.—A practical course in the writing and speaking of English. One day a week is devoted to a study of idiom and to the correction of typical errors; one day to oral

expositions of assigned topics; one day to written themes. In addition to the weekly themes at least six long compositions are required of each member of the class during the year.

This course is prescribed for all regular first-year students in the College of Liberal Arts.

[3 hours throughout the year; 6 units.

Messrs. RUSK.

HILLES.

CHRISTOPH.

ST. CLAIR.

English 2. Advanced Composition.—Prerequisite: English 1.

[2 hours throughout the year; 4 units. Mr. CHRISTOPH.

English 3. Present-Day Authors.—Students will be advised to take this course in connection with English 2. The two courses will be so arranged as to form one three-hour course for those desiring to take both.

[1 hour throughout the year; 2 units. Mr. CHRISTOPH.

English 4. History of English Literature.—A general survey of the development of English literature from the beginning to the Victorian Era. An historical outline, supplemented by the study of representative works. Lectures on the great movements and influences of English literature. Weekly reports based on assigned reading.

[3 hours throughout the year; 6 units. Mr. RUSK.

English 5. General Literature.—A discussion of masterpieces, Occidental and Oriental. Lectures, a considerable amount of reading, and two long reports. The types of literature studied in 1913-14 were the Epic (first semester) and Drama (second semester).

This course is prescribed for second year preparatory law students.

[3 hours throughout the year; 6 units. Mr. RUSK.

SENIOR COLLEGE COURSE

English 11. English Grammar.—A scientific historical study of English phonology, accidence, and syntax. No previous knowledge of Anglo-Saxon is requisite, though students selecting this course must have some acquaintance with at least two languages other than modern English. Prerequisite: 6 units of English.

[3 hours, second semester; 3 units. Mr. HILLES.

English 12. Development of the English Drama to 1642.—Prerequisite: English 4.

[2 hours, first semester; 2 units. Mr. RUSK.

English 13. Shakespeare.—Prerequisite, English 12.

[2 hours, second semester ; 2 units. MR. RUSK.]

English 14. The English Novel.—The development of prose fiction from Lyly to Meredith ; a comparative study of English, Spanish, and Filipino ideals in romantic and realistic fiction. Each student is required to read a number of selected novels and to write reports thereon.

This course may be taken in the second year of the junior college.

[3 hours, first semester ; 3 units. Not given in 1914-15.]

English 15. English Literature of the Victorian Era.—Special attention will be given to the poetry of the period. Prerequisite, English 4.

[2 hours throughout the year ; 4 units. MR. ST. CLAIR.]

English 16. Filipino Folklore ; a Seminar Course.—A comparative study of the beliefs and customs reflected in the literature of the various dialect groups of the Islands. This course is given in English and includes much practice for the student in putting his native speech into idiomatic English equivalent.

[Number of hours and credits to be arranged.]

[First semester, MR. HILLES ; second semester, MR. RUSK.]

TEACHERS' COURSES

Students intending to prepare themselves to teach English in the high schools should elect English 2, 3, 4, 11, 12, and 13 in addition to the following courses for teachers :

English 20. The History of the English Language.—Prerequisite, 12 units of English.

[First semester, 5 units. MR. RUSK.]

English 21. The Teaching of Composition and Literature in High Schools.

[Second semester, 5 units. MR. RUSK.]

EYE, EAR, NOSE, AND THROAT (DISEASES OF)

(See announcement of College of Medicine and Surgery, page 135.)

FRENCH

ALICE JOSEPHINE O'MALLEY, B. A., Instructor in Latin and French.

French 1. Elementary French.—Elementary grammar and composition ; translation and sight reading of simple French prose.

Textbook: Fraser and Squair, French Grammar.

[3 hours throughout the year ; 6 units.]

French 2. Intermediate French (prerequisite, French 1).—Advanced grammar and composition; translation and sight reading of French prose.

[3 hours throughout the year; 6 units.

French 3. Advanced French.—Review of grammar. General view of French literature. Translation and sight reading of works of the best French writers.

[3 hours throughout the year; 6 units.

GEOLOGY

RANDALL ADAMS ROWLEY, B. S., Assistant Professor of Geology.

Geology 1. General Geology (prerequisite, Chemistry 1 and 2; Physics 1 and 2).—A general course, involving a study of geological processes with special emphasis on those which have been important in the geological history of the Philippines. Under this head are taken up the atmosphere as a geological agent, the work of running water, the work of ground water, the work of the ocean, structural geology, movements and deformation of the earth's body, vulcanism, and the geological functions of plants and animals. An elementary treatment is given the origin and descent of rocks, the work of snow and ice, the hypotheses of the earth's origin, earth history, and economic geology. Students are given some practice in interpreting topographic maps.

Textbook: Chamberlin and Salisbury, *Geology*. The following works may also be used for reference: Dana, *Manual of Geology*; Geikie, *Textbook of Geology*; Russell, *Rivers of North America*.

[3 hours a week throughout the year; 6 units.

Geology 2. Elementary Geology.—A short course in dynamic and structural geology, especially adapted to meet the needs of students of engineering. The course is also open to any other students of the University having sufficient preparation. Required of engineering students in the second year.

[3 hours, first semester; 3 units.

Geology 3. Mineralogy (prerequisite, Chemistry 1 and 2).—A detailed study of the chemical and physical properties of common rock-making minerals and of some of the rare minerals of economic importance. Required of engineering students in the second year.

Textbook: Brush and Penfield, *Manual of Determinative Mineralogy and Blowpipe Analysis*.

[6 hours, second semester; 3 units.

Physiography 1.—A course in college physiography. Textbook: Salisbury's *Physiography*.

[3 hours either semester; 3 units.

GERMAN

OTTO JOHNS SCHEERER, Instructor in German.

German 1. Elementary German.—The object of the course is to enable students to use the German language (a) in answering questions concerning the contents of and the elements of grammar in an easy piece of reading; (b) in writing a simple letter, a description of an object in view, or similar easy composition; (c) in translating from easy English.

[3 hours throughout the year; 6 units.

German 2. Intermediate German.—A preparatory course for the reading of literary and scientific authors. Class and outside reading of selected texts. German reviews and periodicals introduced. Reports and discussion in German on the reading matter. A progressive course in composition and letter writing. Grammar continued.

[3 hours throughout the year; 6 units.

German 3. Advanced German.—A summary view of the history of German literature will be given. One of Schiller's dramas will be read in class. Outside reading will be assigned to students in connection with their special lines of study, on which oral and written reports will be made. Difficult points in German grammar will be reviewed, with the aid of Wustman's "Allerhand Sprachdummheiten."

[3 hours throughout the year; 6 units.

NOTE.—The courses will be conducted throughout in German.

HISTORY, ECONOMICS, AND SOCIOLOGY

AUSTIN CRAIG, M. A., Assistant Professor of History.

CHARLOTTE ELIZABETH NEALE, B. L., Instructor in History.

CONRADO BENITEZ, M. A., Instructor in Economics.

History 1a. Modern European History.—A study of European history from 1815 to the present time. This course is prescribed in the first year Preparatory Law Course, in the second year of the Preparatory Medical Course, in the first year of the Preparatory Engineering Course, in the second year of the Preparatory Agriculture Course, and in the second year of the course leading to the degree of Bachelor of Science in Chemistry.

[3 hours, first semester; 3 units. Miss NEALE.

History 1b. Modern European History.—A course given in greater detail than History 1a. Open to any student in the College of Liberal Arts.

[3 hours throughout the year; 6 units. Miss NEALE.

History 2. History and Theories of Government.—This course is prescribed in the first year of the Preparatory Law Course.

[3 hours throughout the year ; 6 units. Mr. BENITEZ.]

History 3. English Constitutional History.—This course is prescribed in the first year of the Preparatory Law Course.

[3 hours, second semester ; 3 units. Miss NEALE.]

History 4. American Constitutional History.—This course is prescribed in the second year of the Preparatory Law Course. Prerequisite, History 3.

[3 hours, first semester ; 3 units. Miss NEALE.]

History 5. American National Government.—This course is prescribed in the second year of the Preparatory Law Course.

[3 hours, second semester ; 3 units. Assistant Professor CRAIG.]

History 6. American State Government.—Especial emphasis is to be placed upon the embryo State, the Territory, with reference to its rights while unorganized and the possibilities for autonomy which it affords.

[3 hours, second semester ; 3 units. Assistant Professor CRAIG.]

History 7. Philippine History.—A study of the origin and development of the Filipino people.

[3 hours, second semester ; 3 units. Assistant Professor CRAIG.]

History 8. Oriental History.—The controlling events in the past of India, China, and Japan.

[3 hours, second semester ; 3 units. Assistant Professor CRAIG.]

History 9. Historical Geography.—

[3 hours throughout the year ; 6 units. Miss NEALE.]

History 11. American Politics.—A study of the origin of political parties in the United States, and of their development.

[3 hours, second semester ; 3 units. Mr. BENITEZ.]

History 13. Diplomatic History of the United States.—A study of American diplomatic principles and of the foreign relations of the United States, with special reference to Spanish America and the Orient.

[3 hours, second semester ; 3 units. Miss NEALE.]

History 14. Philippine History Seminar.—Research work in local history, municipal and provincial.

[3 hours throughout the year ; 6 units. Assistant Professor CRAIG.]

Economics 1. Principles of Economics.

[3 hours, first semester ; 3 units. Mr. BENITEZ.]

Economics 2. Economic Development of the Philippines.

[3 hours, second semester, 3 units. Mr. BENITEZ.]

Economics 3. Economic History of the United States.

[3 hours, first semester ; 3 units. Mr. BENITEZ.]

Sociology 1. Principles of Sociology.—This course is prescribed in the second year of the Preparatory Law Course.

[3 hours, second semester, 3 units. Mr. BENITEZ.]

See also Philosophy 3 and 4.

SENIOR COLLEGE COURSES

History 15. Greek and Roman Civilizations.

[2 hours, second semester ; 2 units.]

History 16. Europe from A. D. 800 to 1648.

[2 hours, first semester ; 2 units.]

History 17. Europe from 1648 to 1815.

[2 hours, second semester ; 2 units.]

History 18. Spanish Constitutional History.

[2 hours, first semester ; 2 units.]

History 19. The Extinct Civilizations of the East.

[2 hours, second semester ; 2 units.]

History 20. Oriental Politics and Civilizations.—A general survey of the historical relation of eastern and western peoples with special reference to occidental influence upon the social and political life of Japan, China, and India.

[3 hours, second semester ; 3 units.]

History 21. The Philippines and the Orient.—An investigation into the relations of the Philippine Archipelago with its neighbors prior to, and at the time of, the Spanish discovery together with a consideration of the principal features of their subsequent intercourse.

[2 hours, second semester ; 2 units.]

History 22. Oriental History Bibliography.—An account of the present state of materials for historical research and an examination of bibliographical tools essential to the special study of oriental history.

[1 hour, second semester ; 1 unit.]

History 23. The Materials of Philippine History.—The purpose of this course is to introduce the student to the principal sources of Philippine historical data.

[2 hours, first semester ; 2 units.]

History 24. Seminar in Philippine History.—In 1914-15, a critical study of the Philippine representation in the Spanish Cortes; in 1915-16, the first foreign merchants in the (modern) Philippines. Each student will be assigned some portion of the literature on the period to be read for reference, and a certain amount of investigation into the archives will be required.

[4 hours, second semester ; 2 units.]

HYGIENE

See announcement of the College of Medicine and Surgery, page 129.

LATIN

ALICE JOSEPHINE O'MALLEY, B. A., Instructor in Latin.

Latin 1. Elementary Latin.—Elementary grammar and composition; Caesar's Gallic wars; (equivalent to two years of high school work).

[3 hours throughout the year; 6 units.

Latin 2. Intermediate Latin.—An intensive study of the following orations of Cicero: In Catilinam, Pro Archia, Pro Lege Manilia: Latin prose composition based on the selected orations.

[3 hours throughout the year; 6 units.

LAW

GEORGE A. MALCOLM, B. A., LL. B., Lecturer on Law, Dean of the College of Law, Director of Courses.

ADAM C. CARSON, LL. B., Professorial Lecturer on International Law.

ERNEST BANCROFT CONANT, B. A., LL. B., Professor of Law.

AMASA S. CROSSFIELD, LL. B., LL. M., Professorial Lecturer on Contracts.

CHARLES SUMNER LOBINGIER, Ph. D., LL. M., Professorial Lecturer on Civil Law.

Law 1. Elementary Law.—This course gives a general view of the development of law and of rights, remedial and substantive; a description of the sources of the law in force in the Philippines, and a systematic outline of the principal branches of the law, public and private. Its chief purposes are to set forth the fundamental conceptions which underlie every department of the law, and to indicate the subject and scope of the various courses offered in the university. The following subjects are also covered: where to find the law; how to use decisions and statutes (including study of cases); how to find the law; legal bibliography.

Textbooks: Clark, Elementary Law; Brief Making, by various authors.

This course is open to students of the Senior College.

[2 hours, first semester; 2 units. Professor CONANT.

Law 2. Philippine Government.—Lectures on the administration and Government of the Philippine Islands, with assigned reading.

Open to students of the Senior College.

[2 hours, first semester; 2 units. DEAN MALCOLM.

Law 3. Obligations (Contracts).—Based on Book IV, Titles I, II, XII (chapters 1, 3) XIII, XVI of the Civil Code and on

Book I, Title IV, of the Code of Commerce. Lectures; assigned cases from the Philippine Reports.

Textbook: Bishop on Contracts.

This course is prescribed for fifth year engineering students.

[2 hours, first semester; 3 hours, second semester; 5 units. Professor CROSSFIELD.

Law 4. Institutes of Roman Law.—A study of its evolution from the earliest period to the completion of the Corpus Juris; followed by a critical analysis of the institutes—syllabi, lectures, and text of the institutes.

Open to students of the Senior College.

[2 hours, first semester; 2 units. Professor LOBINGIER.

Law 5. Constitutional Law.—A study of the nature development and subject matter of the modern constitution. Lectures and leading cases.

Textbook: Ball's Cases on Constitutional Law.

Open to students of the Senior College.

[2 hours, first semester; 2 units. Professor LOBINGIER.

Law 6. Public International Law.—Lectures, with assigned reading from Moore's Digest of International Law.

Textbook: Davis' Elements of International Law.

Open to students of the Senior College.

[2 hours, first semester; 2 units. Professor CARSON.

For other courses see announcement of the College of Law.

MATHEMATICS

WILLIAM JOSEPH COLBERT, B. A., Associate Professor of Mathematics, Chief of Department.

SHIRLEY ELMER ROBERTS, B. A., Instructor in Mathematics.

PILAR HIDALGO, B. A., Instructor in Mathematics.

Mathematics 1. Advanced Algebra.—Review in involution and evolution; surds; theory of exponents and quadratic equations; inequalities; pure, imaginary, and complex numbers; indeterminate linear equations; ratio and proportion; variation; progressions; undetermined coefficients; the binomial theorem for any exponent; logarithms. This course is required of all students in the College of Veterinary Science and of all students in the College of Liberal Arts except those taking the course in pharmacy or preparatory engineering.

Textbook: Wells, Advanced Course in Algebra.

[3 hours either semester; 3 units. Miss HIDALGO.

Mathematics 2. Advanced Algebra—Convergency and divergency of series.—Compound interest and annuities; permutations and combinations; probability; continued fractions;

summation of series; theory of numbers; determinants; theory of equations; solution of higher equations. An elective course open to all students in the College of Liberal Arts who have passed in Mathematics I.

Textbook: Wells, Advanced Course in Algebra.

[3 hours, either semester; 3 units.

Mr. ROBERTS.

Miss HIDALGO.

Mathematics 3. Solid Geometry.—Supplementary studies in plane geometry. Solid and spherical geometry. Practical problems. An elective course open to any student in the College of Liberal Arts.

Textbook: Wentworth, Solid Geometry.

[3 hours, either semester; 3 units.

Mr. ROBERTS.

Miss HIDALGO.

Mathematics 4. Plane trigonometry.—Development of general formulae. Practical problems, computation methods. This course is required of all students in the College of Veterinary Science and of all students in the College of Liberal Arts except those taking the course in pharmacy or preparatory engineering.

Textbook: Wentworth, Plane Trigonometry.

[3 hours either semester; 3 units. Miss HIDALGO.

Mathematics 5. Spherical Trigonometry.—Development of general formulae. Practical problems. An elective course open to all students in the College of Liberal Arts who have passed in Mathematics 1, 3 and 4.

Textbook: Wentworth, Plane Trigonometry.

[2 hours, either semester; 2 units. Miss HIDALGO.

Mathematics 6.—A continuous course throughout the year, primarily for first year preparatory engineering students. Work described under Courses 1, 2, and 4. Required of all first year students in the preparatory engineering course. Other students may take Mathematics 6 by giving evidence of sufficient preparation to the chief of the department.

[4 hours throughout the year; 8 units. Mr. ROBERTS.

Mathematics 7. Analytic Geometry, Differential and Integral Calculus.—Primarily for second year preparatory engineering students. This course is required of all second year students in the preparatory engineering course and is open to all other students who have passed in Mathematics 6.

Textbook: Ashton, Analytic Geometry; Snyder and Hutchin-

son, Differential and Integral Calculus; Osgood, Differential and Integral Calculus.

[7 hours throughout the year; 12 units.
Associate Professor COLBERT.
Mr. ROBERTS.

Mathematics 8. Integral Calculus (completed) and Mechanics.—Primarily for students in the first year College of Engineering. This course is required of all students in the first year of the College of Engineering and is open to all Senior College students who have completed Mathematics 6 and 7.

[6 hours, first semester; 6 units. ————

Mathematics 9. Algebra and plane trigonometry.—Involution and evolution; inequalities; theory of exponents; imaginary and complex numbers; quadratic equations; ratio and proportion; variation; progression; logarithms. An elementary course in plane trigonometry, emphasis being placed on the solution of triangles. This course is required of first year students of pharmacy, dentistry, and veterinary science.

Textbook: Milne's High School Algebra; Wentworth's Plane Trigonometry.

[3 hours, first semester; 3 units. Mr. ROBERTS.

Mathematics 10. Business Methods and Arithmetic of Pharmacy.—Arithmetic and business methods ordinarily used by commercial houses. Primarily for students of pharmacy. Required of all first year students in pharmacy.

[5 hours, second semester; 3 units. Mr. ROBERTS.

Mathematics 11. Differential Equations.—Open to senior college students who satisfy the department of Mathematics of their ability to take this course. Textbook: Differential Equations, Cohen.

[5 hours, either semester; 5 units. Associate Professor COLBERT.

Mathematics 12. Arithmetic, Algebra and Geometry.—A training course designed primarily for future high school teachers. Review of basic principles; solution of difficult problems; study of methods; discussion of texts and practice teaching. Open to those students taking the course in Education and to all Senior College students.

[5 hours throughout the year; 10 units.
Associate Professor COLBERT.
Mr. ROBERTS.

Mathematics 13. Accounting.—Methods of accounting and cost keeping for engineering work. Required in the fourth year of the College of Engineering.

[2 hours, first semester; 2 units.

Mathematics 14. Determinants.—Open to students on the same terms as Mathematics 11.

[5 hours, either semester ; 5 units. Associate Professor COLBERT.

Mathematics 15.—Infinite series.—Open to students on the same terms as Mathematics 11 and 14.

[5 hours, either semester ; 5 units. Associate Professor COLBERT.

MECHANICAL DRAWING

AMBROSIO MAGSAYSAY, C. E., Instructor in Drawing.

Mechanical drawing 1.—Lettering: Characteristics and proportions of standard letters; design of lettering; methods of spacing; design of titles; principles and definitions of mechanical drawing; exercises in the use of instruments; reproduction of drawings; cross sectioning; selected geometrical problems; tracing. Required of students in the first year of the course in Engineering, and in second year of the Preparatory Engineering course in the College of Liberal Arts.

Textbook: Reinhardt, Free-Hand Lettering.

[9 hours, first semester ; 3 units.

Mechanical Drawing 2. Descriptive Geometry.—Representation of lines, planes, and surfaces, and of their relations; tangencies, intersections, and developments; warped surfaces; solution of problems in orthographic, central, and oblique projections, illustrated by examples in shades, shadows, perspective, and stereotomy. Recitations, lectures, drawing. Required of students in the first year of the course in engineering and in the second year of the preparatory engineering course in the College of Liberal Arts.

[16 hours, second semester ; 6 units.

Mechanical Drawing 3. Advanced Projections and Stereotomy.—This course consists of the application of principles of descriptive geometry to the solution of problems in orthographic, central, and oblique projections, illustrated by examples in shades, shadows, perspective and stereotomy. It must be preceded by Course 2. Recitations, lectures, and drawing.

This course will not be offered after 1914–15. It must be elected in July, 1914, by all students who have entered under the old requirements and have not previously taken the course.

[7 hours, first semester ; 3 units.

MEDICINE

See announcement of College of Medicine and Surgery.

MINERALOGY

See "Geology."

PATHOLOGY

See announcement of College of Medicine and Surgery.

PHARMACOLOGY

See announcement of College of Medicine and Surgery.

PHARMACY

See announcement of College of Medicine and Surgery.

PHILOSOPHY

MURRAY BARTLETT, A. B., A. M., President of the University.

FRANCISCO BENITEZ, B. S., Instructor in Education.

Philosophy 1. Elementary Psychology.—Lectures, recitations, and demonstrations.

[3 hours, first semester; 3 units. Mr. BENITEZ.

Philosophy 2. The Principles of Logic, Deductive and Inductive.—Recitations and written exercises.

[3 hours, second semester; 3 units. Mr. BENITEZ.

Philosophy 3. The History of Philosophy.—A study of leading philosophical and ethical theories. Prescribed in the second year of the preparatory law course and of the preparatory medical course in the College of Liberal Arts.

[1 hour throughout the year; 2 units. President BARTLETT.

Philosophy 4. Social Ethics.—The practical application of ethical principles to social problems. Lectures, assigned reading and special reports. Prerequisite, Economics 1. This course is open to students in the College of Law and the College of Medicine; it is also open to others who have taken or are taking Sociology 1.

[2 hours, second semester; 2 units. President BARTLETT.

PHYSICAL TRAINING

GEORGE MICHAEL CASSIDY, B. S., Assistant Professor of Physical Training and Physical Director

All students in the College of Law and Liberal Arts, unless excused for some good reason, are obliged to take two hours physical exercise a week throughout the college year. The men are graded into groups and play such games as will do the most good to the greatest number. Modified indoor baseball, volley ball, soccer foot ball, and track work are the games played. The women of the University are obliged to play tennis.

Two physical examinations are given to each male student of the University each college year. The time and place of these examinations will be designated by the Deans of the respective colleges.

PHYSICS

JAMES REMUS WRIGHT, B. S., Ph. D., Associate Professor of Physics and Chief of Department of Physics.

OSCAR FRANKLIN SMITH, B. S., Assistant Professor of Physics.

OSWALD HANCE BLACKWOOD, B. A., Instructor in Physics.

EDWIN LEROY DRIGGS, C. E., Instructor in Surveying and Physics.

The instruction in physics is directed toward the following ends: (1) The training of teachers of physics for the secondary schools; (2) the training of preengineering, premedical, pharmacy, and veterinary students for their later professional work; (3) the training of the general student in scientific methods of work and in the understanding of the place of physical science in the modern world. In all courses the laboratory and the problem methods of instruction are emphasized.

Physics 1. Elementary Physics.—A first course in the elements of physics designed primarily for students who do not present entrance physics, or whose preparation in physics is found, after trial, to be deficient.

[7 hours throughout the year; entrance credit.

Mr. BLACKWOOD.

Mr. DRIGGS.

Physics 2. General Physics (prerequisite, Entrance Physics or Physics 1).—A course of lectures, demonstrations, and recitations covering the subjects of mechanics, molecular physics, heat, electricity, sound, and light, especial attention being given to recent discoveries and developments in physics.

[8 hours throughout the year; 6 units. Mr. BLACKWOOD.

Physics 2-E.—The same as Physics 2, but with additional work in the application of the fundamental principles and in the solution of problems. Intended primarily for preengineering students and for students specializing in science. Prerequisite, Entrance Physics and Trigonometry.

[3 hours throughout the year; 6 units. Assistant Professor SMITH.

Physics 2-M.—The same as Physics 2, but modified to suit the needs of the premedical student. Prerequisite, Entrance Physics or Physics 1.

[3 hours throughout the year; 6 units. Assistant Professor SMITH.

Physics 2-P.—The same as Physics 2, but modified to suit the needs of the student of pharmacy. Prerequisite, Entrance Physics or Physics 1.

[3 hours throughout the year; 6 units. Mr. BLACKWOOD.

Physics 3. Mechanics, Molecular Physics, and Heat.—A laboratory course in mechanics, molecular physics, and heat, supplemented by lectures and classroom work. Prerequisite, Physics 2 and Trigonometry.

[8 hours, first semester ; 3 units. Associate Professor WRIGHT.

Physics 4. Electricity, Sound, and Light.—A continuation of Physics 3. Prerequisite, Physics 2 and Trigonometry.

[8 hours, second semester ; 3 units. Associate Professor WRIGHT.

SENIOR COLLEGE COURSES.

Physics 21. Molecular Physics and Heat.—A course of lectures and advanced laboratory work. Two hours a week will be devoted to lectures on the kinetic theory, capillarity, elementary thermodynamics, conductivity of solutions, and electrolysis. The lectures will be supplemented by laboratory work involving accurate determinations of vapor pressures and densities, coefficients of friction of gases and liquids, molecular electrical conductivities, freezing and boiling points, latent and specific heats, high and low temperatures, radio-active constants, etc.

Prerequisite, Physics 3 and 4, and Calculus.

[8 hours throughout the year ; 8 units.

Associate Professor WRIGHT.

Assistant Professor SMITH.

Physics 22. Light.—A course of lectures and advanced laboratory work covering theoretically the more important phases of geometrical and physical optics, supplemented by laboratory work consisting of accurate measurements in diffraction, dispersion, interference, and polarization.

Prerequisite, Physics 3 and 4, and Calculus.

[8 hours throughout the year ; 8 units.

Associate Professor WRIGHT.

Assistant Professor SMITH.

Physics 23. Electricity and Magnetism.—A course of lectures and advanced laboratory work in electricity and magnetism. (Not given in 1914-15.)

Prerequisite, Physics 3 and 4 and Calculus.

[8 hours throughout the year ; 8 units.

Associate Professor WRIGHT.

Assistant Professor SMITH.

PHYSIOGRAPHY

See "Geology."

PHYSIOLOGY

See announcement of the College of Medicine and Surgery, page 141.

SPANISH

ARSENIO LUZ, B. A., Instructor in Spanish.

JOSE ARMAYAN ESPIRITU, LL. B., Instructor in Spanish.

Spanish 1.—Elementary Spanish.

Grammar.—Two periods a week for the first semester with simple composition work; and one period a week during the second semester. Based on Hills and Ford's Spanish Grammar as a textbook, and supplemented by "La Gramatica Castellana de la Real Academia Española."

Composition.—One period a week during the second semester as a continuation of the simple exercises given together with the grammar work in the first semester. Practical composition based on simple subjects to encourage the students to think and write in Spanish. Loiseaux's Spanish Composition will be used as a guide.

Reading.—One period a week throughout the year. The following texts will be used in class: Loiseaux, Elementary Spanish Reader for the first semester, and Valdés, Capitán Ribot will be used for the second semester. Great care will be taken to make the students learn the correct Spanish pronunciation and expression.

[3 hours throughout the year; 6 units. Mr. ESPIRITU.]

Spanish 2. Intermediate Spanish.—(Prerequisite, Spanish 1 or two years' work in a preparatory school.) General view of Spanish literature. At the beginning of the year a few exercises in the translation of English into idiomatic Spanish will be required, in order to eliminate from the class those who have not yet acquired a satisfactory command of the language. Thereafter a study will be made of the literature rather than of the language.

The work will comprise translation, interpretation, questions in grammar based on the text, and historical matter contained in the texts and introductions. Lectures will be given on the development of Spanish literature, introduced by a brief survey of Spanish history.

The following texts will be read in class: Alarcón, El Capitán Veneno; Becquer, Selected Tales and Poems; Echegaray, El Gran Galeoto; Moratín, El Sí de las Niñas; Calderón, La Vida es Sueño; and one of Cervantes's Novelas Ejemplares.

For outside reading: Gil y Zárate, Guzmán el Bueno; Galdós, Doña Perfecta; two more of Cervantes's Novelas Ejemplares; and a play by Lope de Vega. The books read during the first

semester all belong to the nineteenth century, the more difficult texts of the earlier periods being taken up in the second semester.

[3 hours throughout the year; 6 units. Mr. LUZ.

Spanish 3.—(Prerequisite, Spanish 2.) The Golden Age in Spanish literature. Rapid reading in Spanish of some of the classics of this period, with interpretation of difficult passages. Such texts as the following will be used: Ford's Spanish Anthology, La Celestina, La Propaladia, La Vida de Lazarillo de Tormes, Ford's Selections from Don Quijote, and several plays by Lope de Vega.

Individual assignments will be given for detailed reports on various special topics; Ticknor's History of Spanish Literature and Rennert's Life of Lope de Vega will be used as reference books. In addition, the following texts will be assigned for home reading: G. de Castro, Las Mocedades del Cid; Tirso de Molina, Don Gil de las Galzas Verdes; Moreto, el Desdén con el Desdén; Calderón, El Mágico Prodigioso.

[3 hours throughout the year; 6 units.

SURGERY

See announcement of College of Medicine and Surgery, page 142.

SURVEYING

EDWIN LEROY DRIGGS, C. E., Instructor in Surveying.

Surveying 1. Use and care of Instruments.—Lectures, textbook, recitations, and field work. Includes Traverse Surveys, Circular Curves, Leveling, Note Keeping and Computation.

[4 afternoons, first semester; 4 units. Mr. DRIGGS.

Surveying 2. Special Surveys and Topographic Mapping.—Four recitations a week, field and office work. Recitations on earth work, land surveying, special surveys, and adjustment of instruments. Field work consists of making topographic surveys by the plane-table, stadia, and photographic methods. Office work includes finished maps from each of the above surveys, one plate of conventional signs, and one profile showing geological structures.

[4 afternoons, second semester; 4 units. Mr. DRIGGS.

Surveying 3. Field Work in Camp.—Includes triangulation, base-line measurement, azimuth observations, topographic and hydrographic surveys, stream gauging, land surveying, survey for a railroad line.

[8 weeks, during vacation; 8 units. Mr. DRIGGS.

Surveying 4. Geodesy and Field Astronomy.—Includes computations based on observations of Course 3, the projection of

maps, time and latitude computations; recitations, and historical papers on geodesy.

[10 hours, second semester; 5 units.

VETERINARY SCIENCE

ARCHIBALD ROBINSON WARD, B. S. A., D. V. M., Professor of Preventive Veterinary Medicine, Chief of the Department.

ALVIN BROERMAN, D. V. M., Assistant Professor of Veterinary Medicine.

E. S. D. MERCHANT, D. V. M., Assistant Professor of Veterinary Medicine.

VICTOR BUENCAMINO, D. V. M., Instructor in Veterinary Surgery.

WILLIAM HUTCHINS BOYNTON, D. V. M., Lecturer on Pathology and Clinical Microscopy.

STANTON YOUNGBERG, D. V. M., Lecturer on Veterinary Jurisprudence.

MAURICE BRUIN MITZMAIN, M. S., Lecturer on Veterinary Entomology.

RAYMOND WALLACE NEWCOMB, D. V. M., Lecturer on Meat Inspection.

Veterinary Science 1. Osteology and Arthrology.—Lectures and dissection. Required for first year veterinary students.

[6 hours throughout the year; 6 units. Assistant Professor BROERMAN.

Veterinary Science 2. Myology, Splanchnology.—Lectures and dissection. Required for second-year veterinary students.

[12 hours throughout the year; 6 units. Assistant Professor BROERMAN.

Veterinary Science 3. General Comparative Anatomy.—Lectures and dissection. Required for third-year veterinary students.

[12 hours through the one semester; 6 units. Assistant Professor BROERMAN.

Veterinary Science 11. General Surgery.—Textbook: Udall's translation of Frohner's General Surgery. Recitations. Fourth year, first semester, four times a week. General surgery intends to impart a general knowledge of the principles of surgery, surgical pathology, therapeutics, and operative technic.

[4 hours, first semester; 4 units. Doctor BUENCAMINO.

Veterinary Science 12. Diseases of Small Animals.—Lectures and practical exercises. Fourth year, second semester, two times a week. Diseases of small animals deals principally with canine and feline diseases along with surgical exercises. Two lectures a week supplemented with surgical exercises.

[2 hours, second semester; 2 units. Doctor BUENCAMINO.

Veterinary Science 13. Obstetrics.—Textbook: Veterinary Obstetrics by W. L. Williams. Recitations. Fourth year, second semester, four times a week.

It is intended to have a strong skeleton where an artificial uterus will be fixed. Newly born calves will be procured, killed and so placed in the artificial uterus that the various corrections of position and embryotomic operations are carried out by the student under the direction of the instructor in charge.

[4 hours, second semester; 4 units. Doctor BUENCAMINO.

Veterinary Science 14. Regional Surgery.—Textbook: Regional Veterinary Surgery, by Moller and Dollar. Recitations.

Fifth year, twice a week, throughout the year. This course is devoted to the surgery of the various regions of the body.

[2 hours throughout the year; 4 units. Doctor BUENCAMINO.

Veterinary Science 15. Surgical Exercises.—Textbook: Surgical and Obstetrical Operations, by W. L. Williams. Laboratory exercises. Fifth year, first and second semesters, once a week.

The course in surgical exercises comprises one period of five hours once a week in which the student is required to perform all the important operations on anesthetized animals which are destroyed at the close of each exercise.

[5 hours, first and second semesters; 2 units. Doctor BUENCAMINO.

Veterinary Science 21. Theory and practice of medicine.—Lectures and recitations with clinical demonstrations. Required for fourth-year veterinary students.

[3 hours throughout the year; 3 units. Assistant Professor MERCHANT.

Veterinary Science 22. Theory and practice of medicine.—Lectures and recitations with clinical demonstrations. Required for fifth-year veterinary students.

[3 hours throughout the year; 3 units. Assistant Professor MERCHANT.

The course in theory and practice of medicine extends over the fourth and fifth years. The fourth year is devoted to the constitutional, dietetic, and noninfectious diseases of the digestive, respiratory, and nervous systems, and the common integuments. The fifth year includes a detailed study of the infectious diseases, the diseases of the blood vascular system, the genito-urinary system, and sanitary police.

Veterinary Science 23. Ophthalmology.—Lectures and recitations. Required for fifth-year students.

[1 hour through the first semester; 1 unit. Assistant Professor MERCHANT.

The course in ophthalmology is given as a supplement to Courses 22 and 23. It includes a consideration of the anatomical and physiological structures of the eye and the treatment of the various pathological conditions that commonly occur. The student is instructed in the use of the ophthalmoscope and the manipulation of the eye.

Veterinary Science 24. Clinical diagnostics.—Lectures and clinical demonstrations. Required for fourth-year veterinary students.

[2 hours throughout the year; 2 units. Assistant Professor MERCHANT.

The course in clinical diagnostics consists of a systematic study of the methods of diagnosis and symptoms of disease in all the various groups of organs, and a practical application of the same is made on the various species of domestic animals.

Veterinary Science 25. Horse shoeing.—Lectures, recitations, and practical demonstrations. Required for fifth-year veterinary students.

[2 hours throughout the first semester; 2 units. Assistant Professor MERCHANT.

The course consists of a careful study of the anatomical, physiological, and pathological conditions of the foot, special attention being given to the various forms of shoes, their construction, and indications, in an attempt to cure pathological conditions of the foot and to correct faulty gaits. In the laboratory periods the student is taught how to prepare the foot and the correct method of fitting shoes.

Veterinary Science 26. Materia Medica.—Lectures, recitations, and laboratory exercises. Required for fourth-year veterinary students.

[3 hours throughout the first semester; 3 units. Assistant Professor MERCHANT.

This course consists in lectures, recitations, and laboratory exercises comprising the origin, composition, and classification of drugs.

The student is also introduced to the subjects of toxicology and prescription writing.

Veterinary Science 27. Therapeutics.—Recitations, lecture and laboratory course. Required for fourth-year veterinary students.

[3 hours throughout the second semester; 3 units.

The course consists in recitation, lecture, and laboratory course considering the physiological and therapeutic actions, indications, contraindications, dosage, toxicology, and methods for administration of drugs in veterinary medicine.

Veterinary Science 31. Special Pathology.—Lectures and laboratory. Required for fifth-year veterinary students.

[6 hours throughout first semester; 2 units. Doctor BOYNTON.

This course consists of a study of the microscopical and macroscopical lesions of the chief infectious diseases.

Veterinary Science 32. Meat Inspection.—Lectures and laboratory. Required for fifth-year veterinary students.

[4 hours throughout second semester; 2 units. Doctor NEWCOMB.

This course consists of a study of the laws and rules governing the meat industry of the Philippines, and a study of the methods used at the various slaughterhouses in and around Manila.

Veterinary Science 33. Preventive medicine.—Lectures and recitations. Required for third-year veterinary students.

[1 hour throughout the year; 1 unit. Dean WARD.

This course consists of a series of lectures outlining the methods used by the Bureau of Agriculture in eradicating and

controlling the various animal diseases that are prevalent in the Islands.

Veterinary Science 34. Milk Inspection.—Required for fifth-year veterinary students.

[4 hours throughout first semester; 2 units. Dean WARD.

Textbook: Pure Milk and the Public Health, by A. R. Ward. Recitations supplemented by lectures and visits to dairies in Manila.

Veterinary Science 35. Jurisprudence.—Lectures and recitations. Required for fourth-year students.

[1 hour per week throughout second semester. Doctor YOUNGBERG.

The course consists in a study of the laws pertaining to contracts, cattle registration, and branding.

The student is also introduced to the subject of professional ethics.

Veterinary Science 36. Language of medicine.—Lectures and recitation. Required for second-year veterinary students.

[1 hour per week, first semester; 1 unit. Assistant Professor MERCHANT.

This course is intended to give young students a knowledge of the meaning of the various technical terms that are used in the study of medicine.

Veterinary Science 37. Veterinary Entomology.—Lectures and laboratory. Required for first-semester fourth-year students.

[6 hours throughout first semester; 2 units. Mr. MITZMAIN.

This course consists of a microscopical and macroscopical study of the principal disease conveying parasites that occur in the Philippines.

ZOÖLOGY

RHEINART PARKER COWLES, Ph. D., Assistant Professor of Zoology, Chief of the Department.

LAWRENCE DILLER WHARTON, M. A., Instructor in Zoology.

SOL FELTY LIGHT, M. A., Instructor in Zoology.

ARTEMAS LAWRENCE DAY, M. A., Instructor in Zoology.

Zoölogy 1. Comparative Zoölogy.—This course is designed to be introductory to medicine and veterinary science as well as to give a general introduction to zoölogy. A selection of important forms of Protozoa, Porifera, Coelelerata, Platyhelminthes, Nematelminthes, Crustacea, Echinodermata, Annulata, Molluscoidea, Mollusca, and Insecta will be made for laboratory study of invertebrate animals. The vertebrate work will include types of the classes, Pisces, Amphibia, Reptilia, Aves, and Mammalia.

Textbook: Parker and Haswell, Textbook of Zoölogy.

[9 hours throughout the year; 6 units.
Assistant Professor COWLES.
Mr. LIGHT.
Mr. DAY.

Zoölogy 2. Zoölogy for Pharmacy Students.—This course is designed more particularly for pharmacy students, but it will be found a useful course for many others, especially those who expect to teach.

It will deal primarily with the dissection of the cat, frog, and turtle, but other forms such as leeches, beetles, and sponges will be studied.

Textbook: Course in Vertebrate Zoölogy, Pratt.

[9 hours, first semester; 3 units.

Mr. WHARTON.

Mr. LIGHT.

Zoölogy 3. Biological Problems in Engineering.—A course treating of the biological problems involved in water supplies, sewerage, and sanitation.

[15 hours, second semester; 5 units. Mr. WHARTON.

Zoölogy 4. Teacher's Course in Zoölogy.—A course in which a study of the animals of the Philippines will be made with special regard to their distribution, relationships, and adaptations. The types used in secondary school work and methods of studying them will be especially considered. Prerequisite, Zoölogy 1.

[One semester; 5 units.

Assistant Professor COWLES.

Mr. WHARTON.

Mr. LIGHT.

Mr. DAY.

SENIOR COLLEGE COURSES

Zoölogy 3 and 4 may be taken in the Senior College by those students who have not been able to take them before graduation from the Junior College.

Zoölogy 5. Comparative Anatomy and Embryology of Invertebrates.—A course designed for those who are preparing to teach zoölogy. Prerequisites, Zoölogy 1 and 2.

Assistant Professor COWLES.

Zoölogy 6. Comparative Anatomy of Vertebrates.—An advanced course for those preparing to teach zoölogy. Prerequisites: Zoölogy 1, 2, and 5.

Zoölogy 7. Field Work.—Students who are interested in zoölogy will be given the opportunity of accompanying expeditions during the vacations in order to obtain a practical knowledge of collecting and preserving specimens under field conditions, as well as to make studies and collections of their own. A considerable amount of field work will be required of all those expecting to teach zoölogy.

THE UNIVERSITY OF THE PHILIPPINES

THE COLLEGE OF LIBERAL ARTS

FOURTH ANNUAL ANNOUNCEMENT AND CATALOGUE

Faculty of the College of Liberal Arts

MURRAY BARTLETT,

President of the University.

WILLIAM JOSEPH COLBERT, B. A.,

Dean, Associate Professor of Mathematics and Chief of the Department.

DEAN SPRUILL FANSLER, B. A., M. A., Ph. D.,¹

Associate Professor of English and Chief of the Department.

HARRY DRAKE GIBBS, B. S., Ph. D.,

Associate Professor of Chemistry and Chief of the Department.

LAWRENCE EDMONDS GRIFFIN, B. A., Ph. D.,¹

Associate Professor of Zoology.

ELMER DREW MERRILL, B. S., M. S.,

Associate Professor of Botany and Chief of the Department.

JAMES REMUS WRIGHT, B. S., Ph. D.,

Associate Professor of Physics and Chief of the Department.

RHEINART PARKER COWLES, B. A., Ph. D.,

Assistant Professor of Zoology, Chief of Department.

AUSTIN CRAIG, M. A.,

Assistant Professor of History.

HARRIOTT ELY FANSLER, Ph. B., M. A., Ph. D.,¹

Assistant Professor of English.

ALEXANDER SARKIS GALAJIKIAN, B. A.,¹

Assistant Professor of Mathematics.

MARIANO VIVENCIO DEL ROSARIO, Ph. D., M. S.,

Assistant Professor of Chemistry.

RANDALL ADAMS ROWLEY, B. S.,

Assistant Professor of Geology.

WALTER ROBERT SHAW, B. A., M. A., Ph. D.,

Assistant Professor of Botany.

OSCAR FRANKLIN SMITH, B. S.,

Assistant Professor of Physics.

AUGUSTUS P. WEST, B. A., Ph. D.,

Assistant Professor of Chemistry.

FRANCISCO AGCAOILI, B. A.,

Instructor in Chemistry.

CONRADO BENITEZ, Ph. B., M. A.,

Instructor in Economics.

FRANCISCO BENITEZ, B. S.,

Instructor in Education.

¹ Resigned.

OSWALD HANCE BLACKWOOD, B. A.,
Instructor in Physics.

CHARLES DEGUIRE CHRISTOPH, B. A.,
Instructor in English.

GUY CLINTON, B. S.,
Instructor in Chemistry.

TIMOTEO DAR JUAN, B. A., Phar. C.,
Instructor in Chemistry.

ARTEMAS LAWRENCE DAY, B. S., M. A.,
Instructor in Zoology.

EDWIN LEROY DRIGGS, C. E.,
Instructor in Surveying and Physics.

JOSE ARMAYAN ESPIRITU, LL. B.,
Instructor in Spanish.

PILAR HIDALGO, B. A.,
Instructor in Mathematics.

WILLIAM TATUM HILLES, B. A., M. A.,
Instructor in English.

SOL FELTY LIGHT, B. A., M. A.,
Instructor in Zoology.

ARSENIO LUZ, B. A.,
Instructor in Spanish.

AMBROSIO MAGSAYSAY, C. E.,
Instructor in Drawing.

CHARLOTTE ELIZABETH NEALE, B. L.,
Instructor in History.

ALICE JOSEPHINE O'MALLEY, B. A.,
Instructor in Latin and French.

SHIRLEY ELMER ROBERTS, B. A.,
Instructor in Mathematics.

RALPH LESLIE RUSK, B. A., M. A.,¹
Instructor in English.

GEORGE W. ST. CLAIR, B. A.,
Instructor in English.

OTTO JOHNS SCHEERER,
Instructor in German.

ALBERT HUNTINGTON WELLS, B. A.,
Instructor in Chemistry.

LAWRENCE DILLER WHARTON, M. A.,
Instructor in Zoology.

¹ Resigned.

COLLEGE OF LIBERAL ARTS

The Board of Regents, on June 6, 1910, authorized the granting of the Bachelor's degree in the College of Liberal Arts on the completion of two years of specified work. Provision was also made on January 30, 1911, for granting the Master's degree to holders of the Bachelor's degree on the completion of three additional years of more specialized and advanced study.

The College of Liberal Arts offers courses not only to those who seek culture and breadth of education, but also to students preparing to enter one of the professional schools. It also makes provision for special students who are not candidates for degrees.

THE JUNIOR COLLEGE

Applicants for admission to the College of Liberal Arts must satisfy the entrance requirements of the college, either by passing the university entrance examinations in the required subjects as explained on pages 35 to 41, or by presenting acceptable certificates in lieu of examination, as explained on pages 42, 43, and 44.

Applications for permission to take the entrance examinations should be made to the Chairman of the University Committee on Admission before May 14, 1914. Applications should be accompanied by a complete record of the applicant's previous studies, and a statement of the subjects in which he wishes to be examined.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS (*"Bachiller en artes"*)

TERMS AND HOURS

The requirements for the degree of Bachelor of Arts¹ are two years of study and, in addition to the prescribed amount of athletics, the completion of at least sixty-eight hours of work, under the rules governing the choice of studies. In the case of the special courses preparatory to law, medicine, engineering, and pharmacy, more than 68 units may be required. Students who register for any of the special courses offered by the College of

¹ This degree does not correspond to the American baccalaureate degree. It is the *bachiller en artes*, a degree familiar in the Philippine Islands for many years. In the University of the Philippines the course for this degree is equivalent to the freshman and sophomore years of the American college.

Liberal Arts will not be allowed to change to other courses before the following semester.

When a student has received surplus entrance credit (see p. 44), there will be deducted from the hours required for graduation the number of hours his surplus entrance credit may warrant, and he will be considered to have been in residence for the period corresponding to the number of hours for which he is given credit on entrance.

A student admitted to the College of Liberal Arts from another college of the University of the Philippines or from any other institution of collegiate rank shall be regarded as having completed the number of terms and of hours to which his records entitle him. He will receive all the privileges of students who have completed the same number of terms and hours by residence in the college. In order, however, to obtain the degree of Bachelor of Arts he must have been in residence at least two semesters in the College of Liberal Arts, and in that college only.

CHOICE OF STUDIES

1. Students registering in the College of Liberal Arts for the first time must hand in their preliminary registration cards, with the list of subjects for the semester, at the Dean's office on or before the third day of instruction.

2. Students may make changes in their list of subjects only during the first ten days of instruction, and then only with the approval of their adviser and of the Dean, on payment of the fee required for change of registration.

3. After the first ten days of the semester no student shall withdraw from any course in which he is registered unless he shall previously obtain the authorization of the Dean.

4. No student whose record has been below grade 2 in any subject taken during the preceding term will be allowed to register for more than eighteen hours.

Of the 68 units required for the degree of Bachelor of Arts all students must take the following:

Group.	Subjects.	Units.	Group.	Subjects.	Units.	Group.	Subjects.	Units.
I	English	6		Botany			Philosophy	
	(Latin			Zoölogy			History	
II	French	6	III	Chemistry	6	V	Political	6
	German			Geology			Science	
	Spanish		IV	Physics			Economics	
				Mathematics ...	6		Sociology	

Athletics, 8 units.¹

Of the 68 units necessary for graduation, twenty-four must be earned in a single group.

GRADUATION WITH HONORS

The degree of Bachelor of Arts "with highest honors" will be given to students obtaining first grade in all subjects of their course; the degree of Bachelor of Arts "with honors" will be given to all students obtaining first grade in at least 48 units and second grade in all other units.

THE PREPARATORY LAW COURSE

The degree of Bachelor of Arts from the Junior College, or its equivalent, is required for entrance to the College of Law. In accordance with the action by the Board of Regents the following preparatory law course which must be taken by all students desiring to study law has been adopted, with the approval of the Dean of the College of Law.

FIRST YEAR

First semester:	Units.	Second semester:	Units.
English 1	3	English 1	3
Spanish 1 or Latin 1	3	Spanish 1 or Latin 1	3
History 1	3	Mathematics 4	3
History 2	3	History 2	3
Physics 2	3	Physics 2	3
Mathematics 1	3	History 3	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
English 5	3	English 5	3
Philosophy 1	3	Philosophy 2	3
Spanish 2 or Latin 2	3	Spanish 2 or Latin 2	3
History 4	3	History 5	3
History 7	3	Sociology 1	3
Economics 1	3	Philosophy 3	1
Philosophy 3	1	Elective	2
Total	19	Total	18

THE PREPARATORY MEDICAL COURSE

The minimum requirement for admission to the College of Medicine and Surgery is the satisfactory completion of one year of the Preparatory Medical Course in the College of Liberal Arts, University of the Philippines, or its equivalent, but the student is advised to take the two years' course, which leads to the degree of Bachelor of Arts.

¹ These units will not count toward graduation.

FIRST YEAR

First semester:	Units.	Second semester:	Units.
English 1	3	English 1	3
German 1	3	German 1	3
Zoölogy 1	3	Zoölogy 1	3
Physics 2-M	3	Physics 2-M	3
Chemistry 1	3	Chemistry 1	3
Mathematics 1	3	Mathematics 4 or Botany 1	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
English 5 or Latin 2	3	English 5 or Latin 2	3
German 2	3	German 2	3
Physics 3	3	Physics 4	3
Chemistry 2	3	Chemistry 2	3
History 1	3	Botany 1 or 2	3
Botany 1 or 2	3	History 10	3
Total	18	Total	18

THE PREPARATORY ENGINEERING COURSE

The Preparatory Engineering Course leads to the degree of Bachelor of Arts. Students completing this course will be admitted to the College of Engineering with advanced credit. Those who can afford the time are advised to take this course before entering the College of Engineering.

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Mathematics 6	4	Mathematics 6	4
English 1	3	English 1	3
Spanish 1 or 2	3	Spanish 1 or 2	3
Economics 1	3	Economics 2	3
History 1	3	History 8	3
Total	16	Total	16

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Mathematics 7	6	Mathematics 7	6
Physics 2-E	3	Physics 2-E	3
French 1	3	French 1	3
Drawing, elementary mechanical	3	Drawing—Descriptive Geometry	6
Shop, woodwork	3	Total	18
Total	18		

Mathematics 6 and 7 form a continuous course consisting of algebra, solid geometry, plane trigonometry, analytical geometry, differential and integral calculus.

THE PREPARATORY AGRICULTURAL COURSE

Students who desire eventually to receive the degree of Bachelor of Science in Agriculture will find it advantageous to choose the following arrangement of courses, which corresponds closely to the first half of the four-year course of the College

of Agriculture. The degree of Bachelor of Arts will be conferred upon the completion of the work outlined below.

FIRST YEAR

First semester:	Units.	Second semester:	Units.
English 1	3	English 1	3
German 1	3	German 1	3
Mathematics 1	3	Mathematics 4	3
Chemistry 1	3	Chemistry 1	3
Physics 2	3	Physics 2	3
Botany 2	3	Botany 2	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
German 2	3	German 2	3
Chemistry 2	3	Chemistry 2	3
Botany 3	3	Botany 3	3
Zoölogy 1	3	Zoölogy 1	3
History 1	3	History 8	3
Animal Husbandry 1	3	Animal Husbandry 1	3
Total	18	Total	18

THE PREPARATORY COURSE IN EDUCATION

The preparatory course in education of two years given in the College of Liberal Arts, or its equivalent, will be required of all students desiring to enter the School of Education. See page 61.

The degree of Bachelor of Arts will be conferred upon the completion of the course, but graduates who wish positions under the Bureau of Education as teachers in the Government high schools must successfully complete a further year's study in the School of Education.

FIRST YEAR

First semester:	Units.	Second semester:	Units.
English 1	3	English 1	3
Latin II	3	Latin II	3
Mathematics 1	3	Mathematics V	3
History	3	History	3
Science	3	Science	3
Elective in major subject	3	Elective in major subject	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Philosophy I	3	Philosophy II	3
Education I	3	Education II	6
Teacher's Course in major subject	5	Teacher's Course in major subject	5
Electives	6	Electives	3
Total	17	Total	17

STUDENT ADVISERS

In the junior college each student is placed under the immediate charge of a member of the faculty, who acts as his adviser in matters pertaining to university work. The student must

consult his adviser in choosing his studies, and the approval of the adviser must also be obtained before registration can be completed.

THE SENIOR COLLEGE

Three years of work, leading to the degrees of Master of Arts and Master of Science, are offered in the upper division of the College of Liberal Arts, known as the Senior College.

Admission to the Senior College is conditioned upon the completion of the Junior College course of the College of Liberal Arts of the University of the Philippines, or of an equivalent amount of work elsewhere.

REQUIREMENT FOR THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE

The degrees of Master of Arts and Master of Science will be conferred upon candidates who have satisfactorily completed three years' work in the Senior College, selected in compliance with the regulations governing the choice of majors, minors, and theses. The University does not engage to grant this degree for three years' work, unless the candidate satisfies the faculty that he is worthy of receiving the degree.

Students who satisfactorily complete two years of well-chosen work in addition to the requirements now in force for the degree of Bachelor of Arts, or who demonstrate that their training has carried them two years beyond these requirements, will be admitted to candidacy for master's degrees.

Each student must have one major subject of study, and in choosing his course must have the approval of the head of the department in which his major study is chosen, who will be the student's adviser. Before being admitted to candidacy for the degree, he must have twenty credits each in his major and in one minor subject, and must have a reading knowledge of French or German. Each application for admission to candidacy for the master's degree will be voted upon individually by the committee on graduate study.

The general conditions for the granting of master's degrees after admission to candidacy are:

- (a) At least one college year of resident study.
- (b) Presentation of a satisfactory thesis which may represent one-third of the work of a year.
- (c) Completion of at least ten units in the department in which the thesis is prepared.

(d) Completion of a total of thirty-six units of graduate work in the major subject.

(e) Completion of a total of thirty units in all subjects during the final year.

(f) Completion at least 90 units of Senior College courses.

Persons satisfactorily complying with these conditions will be granted degrees as follows:

(a) The degree of Master of Science in case the major subject, in which the thesis has been prepared, is scientific or technical.

(b) The degree of Master of Arts in case the major subject is one of those usually recognized as belonging to the "humanities."

THESIS

Every student who is a candidate for the degree of Master of Arts or Master of Science shall write a thesis in his last year of attendance under the direction of the department in which he has chosen his major. This thesis must be a scholarly dissertation on some subject coming within the province of that department. If accepted, the thesis shall entitle the student to credit, at the discretion of the department, as already mentioned. The subject must receive the written approval of the professor in charge of the study to which it relates, and a memorandum of such approval and of the title of the thesis must be filed with the Dean. A bound copy of the thesis, typewritten on one side of paper 8 by 10½ inches in size, and double spaced, must be deposited with the Dean, for presentation to the faculty. The copy thus presented shall become the property of the University.

WORK IN OTHER COLLEGES

It may be advantageous for certain students of the senior college to take courses in the Colleges of Agriculture, Medicine, Law, and Veterinary Science. Such courses will be counted toward the degree of Master of Arts.

COURSE IN CHEMISTRY

The course leading to the degree of Bachelor of Science in chemistry is intended to prepare students for commercial work. In the fourth year of the course a large amount of work can be elected to fit the student for the special line of chemical work which he desires to pursue. The fifth year leading to the degree of Master of Science is designed to give students a broader knowledge of the subject and prepare them for work in government and research laboratories and teaching positions.

PRESCRIBED COURSE OF STUDY

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 1	3	Chemistry 1	3
Mathematics 6	5	Mathematics 6	5
English 1	3	English 1	3
German 1	3	German 1	3
Physics 2	3	Physics 2	3
Total	17	Total	17

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 2	3	Chemistry 2	3
Mathematics 7	5	Mathematics 7	5
German 2	3	German 2	3
History 1	3	History 8	3
Physics 3	3	Physics 4	3
Total	17	Total	17

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 3	3	Chemistry 4	3
Chemistry 5	3	Chemistry 5	3
Geology 2	3	Geology 3	3
Botany 2	3	Botany 2	3
French 1	3	French 1	3
Zoölogy 2	3	Elective	3
Total	18	Total	19

FOURTH YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 6	2	Chemistry 6	2
Chemistry 7	3	Chemistry 7	3
Chemistry 9	5	Chemistry 9	5
Drawing 1	3	Drawing 2	4
Electives	4	Electives	4
Total	17	Total	18

FIFTH YEAR

(Leading to the degree of Master of Science.)

Elective courses in advanced analytical, organic, inorganic, and other chemical studies, together with such courses in other departments as may be elected with the consent of the chief of the department of chemistry, constitute the major portion of the work of this year, which is designed to prepare the student for the professional work which he has chosen. A considerable part of the time of the year will be devoted to research work, which will be made the basis of a thesis. This thesis must be completed in form ready for publication, and must be approved by the chemical faculty, before graduation, subject to the general rules of the University concerning theses.

THE SCHOOL OF EDUCATION

On recommendation of the president of the University and the Director of Education, the Board of Regents of the University have established a School of Education for the purpose of preparing well qualified teachers for the Government high schools of the Philippine Islands.

The School of Education is a constituent part of the College of Liberal Arts and is under the direction of a committee consisting of the Dean of the college as chairman, the Director of Education, representing the Board of Regents, and the chiefs or acting chiefs of the following departments: English, mathematics, history, physics, botany, zoölogy, and education.

For admission to the School of Education, there is required the completion of the preparatory course in education in the College of Liberal Arts or a course which the committee in charge of the school shall consider equivalent.

COURSE LEADING TO THE HIGH-SCHOOL TEACHERS' CERTIFICATE.

First semester:	Units.	Second semester:	Units.
Education III	3	Education III	3
Education IV	2	Education IV	2
Practice teaching	3	Practice teaching	3
Educational psychology	3	Educational psychology	3
Teachers' course in minor subject....	5	Teachers' course in minor subject....	5
Spanish (optional)	3	Spanish (optional)	3
Total	19	Total	19

Upon the successful completion of this course, the candidate may be recommended by the committee in charge of the School of Education to receive a high-school teacher's certificate. This certificate, by agreement with the Bureau of Education, will entitle those who receive it to appointment to teaching positions in the high schools of the Government.

High-school teachers who have successfully completed the above mentioned courses may, with the permission of the Director of Education, pursue a further year's study approved by the committee in charge of the School of Education. Upon the completion of this year, they may be recommended for the degree of Bachelor of Science in Education.

COURSE IN PHARMACY

The course in pharmacy hitherto given in the College of Liberal Arts has been transferred to the School of Pharmacy of the College of Medicine and Surgery.

All information regarding instruction in pharmacy will be found in the announcement of the College of Medicine and Surgery, pages 185.

GENERAL INFORMATION FOR STUDENTS IN THE COLLEGE OF LIBERAL ARTS

MEDICAL EXAMINATION

All students of the college are required to undergo a medical examination at the beginning of each semester. This examination is a prerequisite to registration. No fee will be charged for the examination.

ATHLETICS

All students will be required to take systematic exercise provided they shall be certified as fit by the medical examiner. (See Athletic Association, p. 46.)

HOSPITAL FACILITIES AND MEDICAL ATTENDANCE

The Philippine General Hospital grounds adjoin the campus of the University. Students of the University may there receive emergency attendance free, and will be admitted for treatment in case of illness at the usual reasonable rates.

LIBRARIES

Through the courtesy of the librarian, the privileges of the library of the Military Information Bureau are extended to the faculty of the University of the Philippines. This library contains a good collection of books on military history, on colonization and colonial government, on current problems of the Orient, as well as all the essential secondary material for the study of Philippine history. It is located in Fort Santiago, Manila.

The privileges of the Circulating Library of Manila are also extended to students of the University free of the usual charge. The following regulations must be observed:

1. The student shall present a statement, signed by the secretary, to the effect that he is a regularly enrolled student of the University and in good standing.

2. The student shall agree in writing to obey the regular rules and regulations of the library and to be personally responsible for any loss that the library may sustain through him.

3. The University of the Philippines will require its students to fulfill strictly all the rules and regulations of the library.

4. These privileges will be denied any student whenever any of the rules and regulations are infringed.

The scientific division to the Philippine Library is in the building of the Bureau of Science. The books of this library may be used by students under special permission.

GENERAL DEPOSIT

Each student must deposit ₱10 with the secretary upon matriculation. This deposit is for the purpose of covering any losses of apparatus, supplies, or books, or any damages to university property which may properly become a charge against the student. If students take ordinary care of the materials issued to them, their deposits should be returned to them intact when they leave the University. Students about to leave college should be careful to see that all books are returned to the various libraries and that all university property for which they are responsible is returned to the storerooms.

FEES

A laboratory fee of ₱5 per semester will be charged in those laboratory courses giving not more than three hours' credit; ₱10 will be charged for laboratory courses giving more than three hours' credit.

MICROSCOPES AND LABORATORY APPARATUS

The college is equipped with a sufficient supply of microscopes and other laboratory apparatus for the use of the students. All apparatus must be returned to the storerooms in good condition, or charges for replacement or repairs will be made.

EXPENSES

The expenses connected with the college courses consist of the general deposit, laboratory fees, athletic fees, and the cost of textbooks. The deposit and athletic fees are the same for all. The laboratory fees are not likely to exceed ₱20 a semester. The cost of books is variable, but every student should be prepared to spend from ₱60 to ₱100 a year for books. A student who is taking no laboratory courses may find that ₱80 a year will cover the expenses mentioned. One who is taking a considerable amount of laboratory work and whose books are more expensive may need ₱150.

Room and board in Manila cost from ₱15 to ₱50 a month.

STUDENTS IN THE COLLEGE OF LIBERAL ARTS DURING THE
ACADEMIC YEAR 1913-1914*Graduate students (9)*

Blackwood, O. F.
Claudio, Eduardo.
Cinton, Guy.
Gray, S. E.
Hidalgo, Pilar.

Navarette, Lope.
Parker, Luther.
Roberts, Shirley.
Townsend, Henry S.

Preparatory medicine

FIRST YEAR (53)

Aglipay, Emilio.
 Alejandrino, Patrocinio.
 Antonio, Ambrosio.
 Aragon, Crisanto H.
 Arcilla, Pedro.
 Anzures, Pablo M.
 Baltazar, Rosendo.
 Benedicto, Concepcion.
 Blancaflor, Cornelio.
 Bonus, Alfredo.
 Buñag, Juan.
 Castro, Pedro.
 Clarin, Antonio N.
 Cortez, Balbino.
 Elicaño, Tranquillino.
 Fabie, Esteban.
 Fajardo, Rodolfo A.
 Firme, Florencio.
 Garcia, Bienvenido.
 Gonzales, Eva.
 Guzman, Gregorio.
 Guzman, Nestor.
 Joson, Ruperto.
 Joson, Toribio.
 Jugo, Felix.
 Kintanar, Teodorico S.
 Lara, Casimiro.

Lara, Hilario.
 Montes, José A.
 Navarro, Regino J.
 Nepomuceno, Perfecto.
 Panlilio, Josefa.
 Pascual, Antonio.
 Penya, Gaudencio.
 Perez, Hilario P.
 Piedad, Federico.
 Reyes, Ramon F.
 del Rosario, Magdaleno.
 Roxas, Elisa.
 Samson, José.
 Santos, Patricio.
 Segundo, Fidel.
 Siasoco, Severo.
 Silva, Clemente.
 Tanjoco, Emilio.
 Tantoco, Luis B.
 Tiomico, Jesus R.
 Tison, Rosalio.
 Ver, Leon.
 Vera, Bonifacio.
 Vergara, Rodrigo.
 Villarama, Antonio.
 Ylanan, Catalino.

Preparatory Engineering

SECOND YEAR (9)

Clemente, Hilario.
 Cortez, Nicanor.
 Fernandez, Severino.
 Fernando, Isaias.
 Lenon, Atanacio F.

Lozada, José.
 Macabulos, T. P.
 Nitorreda, Arturo.
 Tan Chanco, Silvestre.

FIRST YEAR (22)

Baumann, Rodolfo.
 Colmenar, Tomas.
 Coronel, Artemio.
 Dimaano, Gregorio.
 Dimson, Maximo.
 Follosco, José.
Mingco, Rafael.
 Ignacio, José.
 Novenario, Luis.
 Olarte, Andres N.
 Pascual, Vicente.

Quintero, Luis.
 Reich, Henry.
 Rosario, Casimiro del.
 Ruste, Melchor E.
 Santiago, Emilio N.
 Santos, José.
 Tienzo, Telesforo.
 Tolentino, Salvador.
 Velasco, Felix Y.
 Villalon, Rosalio.
 Zosa, Vicente.

Preparatory Law

SECOND YEAR (22)

Araneta, Felipe.	Ledesma, José A.
Balagot, Gil D.	Licup, Lorenzo.
Corpus, Elidoro.	Martinez, Telesforo.
Cruz, Servillano R.	Pargas, David.
Dumlao, Santiago.	de la Rama, Jesus.
Fronoso, Gregorio N.	Sanchez, Bernardo.
Hilario, José M.	Sorreta, Pedro D. L.
Hilario, Vicente M.	Tabora, Manuel.
Kintanar, Agustin.	Vargas, Tomas V.
Labrador, Alejo.	Yap-Chiongco, Gavino.
Ladao, Juan M.	Ybiernas, Vicente.

FIRST YEAR (59)

Abasolo, Engracio.	Layug, Leopoldo.
Agrava, Celedonio.	Lecaroz, Pedro.
Ampil, Mariano.	Leon, Cesareo de.
Arciaga, Hilario.	Lesaca, José V.
Aure, Miguel A.	Lutero, Deogracias.
Austria, Salvador.	Manuel, Cesar.
Badilla, Gavino.	Martir, Arsenio E.
Bautista, John.	Ocampo, Francisco.
Bautista, Pantaleon.	Padilla, Constancio.
Bernardo, Macario.	Paez, Arsenio N.
Biteng, Lupo.	Paez, Eleuterio.
Buenaventura, Teodosio.	Paredes, José Ma.
Campo, Lorenzo.	Paz, Simeon B.
Cruz, Simon R.	Quinto, Vicente.
Cuadra, José.	Recio, Domingo T.
Domingo, José D.	Reyes, Nicanor.
Estayo, Eugenio.	Reyes, Salvador F.
Fargas, Gil.	Rodriguez, Arsenio.
Fernandez, Patricio.	Samson, Marcelo.
Gallego, Manuel.	San José, Ramon.
Garcia, Clodualdo.	Santos, Rufina.
Gironella, Cirilo.	Torrijos, Manuel.
Gonzales, Mariano.	Tumaneng, Tiburcio.
Granada, Santiago.	Valera, Constante.
Hartigan, Leonard W.	Vega, Marcos A.
Hernandez, Fernando.	Velasco, Dominador C.
Ignacio, Quirico.	Velasquez, Gregorio.
Joven, Arturo.	Villarosa, Fernando.
Lapuz, Patrocinio.	Wisco, Crispino.
Lasam, Eladio.	

Regular A. B. Course

SECOND YEAR (18)

Alcantara, Gregorio.	Clemente, Amando.
Angeles, Jesus P.	Cortes, Pedro J.
Bunuan, Vicente.	Dayao, Amado.

Regular A. B. Course—Continued

SECOND YEAR (18)—continued

Filoteo, Caesar.	Santos, Exequiel.
Laki, José.	Santos, Francisco O.
Ledesma, Daniel.	Santos, Salvador.
Leon, Sancho de.	Sebastian, Proceso E.
Melencio, José P.	Victorino, Leodegario.
Moreno, José.	Ysmael, Felipe.

FIRST YEAR (58)

Acosta, Rafael.	Gonzales, Martin L.
Africa, Francisco M.	Gonzales, Raymunda.
Agbayani, Genaro.	Guzman, Paz de.
Agdamag, Crispulo V.	Hernandez, José V.
Alierno, Amando.	Hinojales, Ramon.
Alvarado, Eduardo A.	Ilagan, Santiago.
Allona, Encarnacion.	Jocson, Fabia.
Ancheta, L. E.	Maceda, Antonio.
Arigo, José V.	Manuel, Lorenzo.
Arguelles, Aurelio.	Manuel, Ramon.
Barba, Tomas.	Mapa, Luisa M.
Barnes, W. H.	Marfori, Felix.
Benavides, Loreto.	Mariano, Andrea.
Bersamin, Presentacion.	Milaor, Lazaro.
Bonifacio, Arsenio.	Morante, Amanda.
Cajipe, Wenceslao.	Ortega, Ricardo.
Cancio, Hugo.	Ordoñez, Fernando.
Chanco, Francisca.	Palangka, Maria.
Chaves, Eulalio.	Paras, Conrado.
Cordero, Elisa.	Pargas, Dominador.
Cosio, R. A.	Perez, Felipe.
Cruz, Mariano.	Portilla, Rosario.
Cunanan, Simeón.	Silva, Paz.
Elbo, Candido.	Tangco, Marcelo.
Eleazar, Gregorio.	Tirona, Ramona.
Francisco, Teodora.	Tongson, Josefina.
Garcia, Bernardo P.	Villamayor, Emiliana.
Gonzaga, Encarnacion.	Villanueva, Dionisio.
Gonzales, León M.	Zafra, Nicolas.

Preparatory Agriculture

FIRST YEAR (3)

Bangilan, Filomeno.	Manio, Ramon V.
Fernando, Antonio.	

Course in Chemistry

FIRST YEAR (2)

Alincaestre, Cecilio.	Peña, Magdaleno.
-----------------------	------------------

Pharmacy Course

THIRD YEAR (8)

Francisco, Modesta.	Quesada, Eugenio C.
José, Lino.	Ramos, Crescencia.
Jugo, Filomena.	Tirona, Maria.
Marañon, Joaquin.	Yulo, Teresa.

SECOND YEAR (14)

Abadilla, Honorio.	Herrera, Pilar Perez.
Alvarez, Dolores C.	Llamas, Dionisio R.
Briones, Galicano.	Lonango, Dominador R.
Chaves, Rosa P.	Santos, José K.
Cordero, Pacita.	Villanueva, Candelaria.
Gatmaytan, Encarnacion.	Vitug, Hermogena B.
Gloria, José.	Vitug, Victor B.

FIRST YEAR (23)

Abarquez, Ramon.	Mallari, Enrique.
Agrava, Angela.	Matias, Maria.
Arguelles, José.	Nicolas, Manuel.
Chuapoco, Josefa.	Ongsiaco, Emilia.
Espinosa, Manuel.	Panlilio, Anatolia.
Evangelista, Raymunda.	Remollo, Pacifico.
Feliciano, Ramon.	Suaco, Miguela.
Felizardo, Mamerta.	Tiangco, Enrique.
Francisco, Agapita.	Trijo, Elisea.
Garcia, Rosario.	Vera, Eusebio.
Hinojales, Francisco.	Villegas, Tarcila.
Limson, Mariano.	

Special students (17)

Asuzano, Eustaquio.	Jesus, Vicente de.
Buckley, Joseph.	Larena, P.
Cariño, Emetrio.	Mariano, Honesto.
Carpio, Restituto.	Ramos, José.
Clapp, Hilary P.	Reyes, Benito M.
Conner, Frank.	Santos, Demetria.
Cuizon, Fausto C.	Wrentmore, Clarence G.
Farinas, Canuto.	Ynares, Bonifacio.
Feliciano, José.	

SUMMARY

Number of students registered in the College of Liberal Arts..	317
Number of veterinary students taking courses in the College of Liberal Arts.....	24
Number of law students taking courses in the College of Liberal Arts	17
Number of engineering students taking courses in the College of Liberal Arts.....	3
Number of medical students taking courses in the College of Liberal Arts	7
Number of students registered in other colleges.....	51
Total attendance	368

THE UNIVERSITY OF THE PHILIPPINES

COLLEGE OF MEDICINE AND SURGERY

INCLUDING

THE GRADUATE SCHOOL OF TROPICAL MEDICINE AND
PUBLIC HEALTH

AND

THE SCHOOL OF PHARMACY

EIGHTH ANNUAL ANNOUNCEMENT AND CATALOGUE

DEAN'S OFFICE

**COLLEGE BUILDING, 547 CALLE HERRAN, ERMITA.
OFFICE HOURS 9 TO 10 DAILY.**

Chief Clerk's Office

**Open daily from 8 a. m. to 12 m., and from 1 p. m. to 4 p. m.; Saturday,
8 a. m. to 1 p. m.**

**All correspondence should be addressed to the Dean, College of Medicine
and Surgery, Manila, Philippine Islands.**

COLLEGE OF MEDICINE AND SURGERY

Calendar

Day of week and month.	Event.
1914	
Monday to Saturday, June 15 to 20	Entrance examinations.
Thursday to Tuesday, June 25 to 30	Registration and physical examination days for all colleges except Agriculture.
Wednesday, July 1	Exercises of first semester begin.
Saturday, July 4	Legal holiday.
Thursday, August 13	Legal holiday.
Monday to Saturday, October 26 to 31 ..	Final examination of first semester.
Saturday, October 31	First semester ends.
Sunday to Sunday, November 1 to 8	Intersemester vacation.
Monday, November 9	Exercises of second semester begin.
Thursday, November 26	Legal holiday.
Sunday December 20	Christmas vacation begins.
1915	
Sunday, January 3	Christmas vacation ends.
Monday, January 4	Exercises resumed.
Monday, February 22	Legal holiday.
Monday to Saturday, March 22 to 27	Final examinations of second semester.
Monday to Thursday, March 29 to April 1 ..	Commencement week.

Officers of Administration

MURRAY BARTLETT,
President of the University.

WILLIAM EVERETT MUSGRAVE,
Dean, Chief, Department of Medicine.

ELBERT CLARK,¹
Chief, Department of Anatomy.

ROBERT BANKS GIBSON,
Chief, Department of Physiology.

ALFRED OGLE SHAKLEE,
Chief, Department of Pharmacology.

BOWMAN CORNING CROWELL,
Chief, Department of Pathology and Bacteriology.

FERNANDO CALDERON,
Chief, Department of Obstetrics.

JOSE ALBERT,
Chief, Department of Pediatrics.

PHILIP KINGSNORTH GILMAN,
Chief, Department of Surgery.

REINHARD REMBE,
Chief Department of Ophthalmology, Otology, Rhinology and Laryngology.

ERNEST LINWOOD WALKER,
Chief, Department of Medical Zoology.

VICTOR GEORGE HEISER,
Chief, Department of Hygiene.

ANDREW GROVER DU MEZ,
Director, School of Pharmacy.

ORLIE S. SULLIVAN.
Chief clerk.

PEDRO M. CHANCO,
Record clerk.

¹ Resigned.

STANDING COMMITTEES OF THE COLLEGE

COMMITTEE ON ADMISSIONS

Associate Professor SHAKLEE.
Assistant Professor LHAMON.
Dr. ANTONIO VAZQUEZ.

COMMITTEE ON BUILDING AND GROUNDS

Associate Professor CROWELL.
Associate Professor GIBSON.
Mr. FELIX HOCSON.

CATALOGUE AND SCHEDULE COMMITTEE

Associate Professor GIBSON.
Associate Professor DAVIS.
Dr. DANIEL DE LA PAZ.

CLINICAL COMMITTEE

DEAN MUSGRAVE,
Chairman and Chief of Clinics.

Professor ALBERT.	Associate Professor GUERRERO.
Professor BAUTISTA.	Associate Professor REMBE.
Professor CALDERON.	Associate Professor ROXAS.
Professor GILMAN.	.....

EXECUTIVE BOARD

Chiefs and Acting Chiefs of Departments.
Professors and Associate Professors.

LIBRARY COMMITTEE

Professor ALBERT.
Assistant Professor HAMMACK.
Dr. PERPETUO GUTIERREZ.

Faculty of the College of Medicine and Surgery

MURRAY BARTLETT,
President of the University.

PROFESSORS

WILLIAM EVERETT MUSGRAVE, M. D.,
Dean of the College of Medicine and Surgery;
Professor of Medicine, Chief of Staff.
Philippine General Hospital.

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Kneeder Building, Manila.

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Bureau of Health, Manila.

ASSOCIATE PROFESSORS

ELBERT CLARK, B. S.,¹
Associate Professor of Anatomy.

BOWMAN CORNING CROWELL, B. A., M. D., C. M.,
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Bureau of Science, Manila.

GEORGE GILBERT DAVIS, B. A., M. D.,
Associate Professor of Surgery.
Philippine General Hospital.

ROBERT BANKS GIBSON, Ph. B., Ph. D.,
Associate Professor of Physiology.
College of Medicine and Surgery.

LUIS GUERRERO, M. D.,
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143 Isaac Peral, Ermita, Manila.

REINHARD REMBE, M. D.,
Associate Professor of Ophthalmology, Otology, Rhinology, and Laryngology.
Philippine General Hospital.

¹ Resigned.

ASSOCIATE PROFESSORS—Continued

BALDOMERO ROXAS, M. D.,
Associate Professor of Obstetrics.
417 Sales, Santa Cruz, Manila.

ALFRED OGLE SHAKLEE, B. S., M. D.,¹
Associate Professor of Pharmacology.

ERNEST LINWOOD WALKER, B. A. S., B. S., S. D.,
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Bureau of Science, Manila.

ASSISTANT PROFESSORS

ANDREW GROVER DU MEZ, Ph. C., B. S., M. S.,
Assistant Professor of Pharmacology.
College of Medicine and Surgery.

POTENCIANO GUAZON, B. A., M. D.,
Assistant Professor of Surgery.
College of Medicine and Surgery.

ROY WALLACE HAMMACK, B. A., M. D.,
Assistant Professor of Pathology and Bacteriology.
College of Medicine and Surgery.

RUSKIN LHAMON, B. A., M. D.,
Assistant Professor of Anatomy.
College of Medicine and Surgery.

ANTONIO GUILLERMO SISON, B. A., M. A., M. D.,
Assistant Professor of Medicine.
211 Carriedo, Manila.

SALVADOR VIVENCIO DEL ROSARIO, B. A., M. D.,
Assistant Professor of Hygiene.
Bureau of Health, Manila.

DAVID GIFFORD WILLETS, Ph. B., M. D.,
Assistant Professor of Medical Zoology.
Bureau of Science, Manila.

INSTRUCTORS

HONORIA ACOSTA-SISON, M. D.,
Instructor in Obstetrics.
259 Arquiza, Ermita, Manila.

DANIEL DE LA PAZ, M. D.,
Instructor in Pharmacology.
College of Medicine and Surgery.

JOSE EDUQUE, M. D.,²
Instructor in Surgery.

JESUS GONZALES, B. A., M. D.,³
Instructor in Anatomy.
548 San Luis, Ermita, Manila.

PERPETUO GUTIERREZ, M. D.,
Instructor in Clinical Medicine.
Philippine General Hospital.

¹ On leave.² Abroad on scholarship.³ Temporary appointment.

INSTRUCTORS--Continued

JOSE HILARIO, M. D.,¹
Instructor in Pathology and Bacteriology.

FELIX HOCSON, B. A., Ph. C.,
Instructor in Pharmacology.
College of Medicine and Surgery.

CARMELO MALABANAN REYES, M. D.,
Instructor in Surgery.
Philippine General Hospital.

FERDINAND SCHMITTER, B. A., M. D.,²
Instructor in Anatomy.
College of Medicine and Surgery.

COURT ROGER STANLEY, M. D.,¹
Instructor in Clinical Medicine.
Philippine General Hospital.

MARIANO TOLENTINO, M. D.,
Instructor in Obstetrics.
Philippine General Hospital.

ARISTEO R. UBALDO, B. A., L. M.,²
Instructor in Diseases of Eye, Ear, Nose, and Throat.

ANTONIO DANIEL VAZQUEZ, B. S., M. B.,
Instructor in Surgery.
Philippine General Hospital.

¹ On leave.

² Temporary appointment.

Other Officers of Instruction

LECTURERS ON SPECIAL TOPICS

CHARLES SUMNER BANKS, M. S.,
Bureau of Science,
Lecturer on Medical Entomology.

Lecturer on the Pathogenesis of Physical Agents in the Tropics.

DANIEL WEBSTER EGNER,
Bureau of Health,
Lecturer on Sanitary Office Administration.

ALMON PLINY GOFF, M. D.,
Bureau of Health,
Lecturer on Disposal of the Dead.

MANUEL GOMEZ, B. A., L. M.,
Chief, Statistical Division, Bureau of Health,
Lecturer on Social and Vital Statistics.

GEORGE GUERDRUM, B. S.,
Sanitary Engineer, Bureau of Health,
Lecturer on Sanitary Engineering.

SAMUEL C. GURNEY, M. D.,
Lieutenant-Colonel Medical Corps, and Superintendent, Medical Division Philippine Constabulary,
Lecturer on Medical Economics and Ethics and on Military Hygiene.

ROBERT E. L. NEWBERNE, B. S., M. S., D. D. S., M. D.,
Bureau of Health,
Lecturer on Nervous and Mental Diseases, Legal Medicine and Medical Jurisprudence.

HOWARD F. SMITH, M. D.,
U. S. Public Health Service,
Lecturer on Quarantine Methods.

ERNEST HENRY RUEDIGER, M. D.,
Biological Laboratory, Bureau of Science,
Lecturer on Immunity and Serum Therapy.

OTTO SCHÖBL, M. D.,
Biological Laboratory, Bureau of Science,
Lecturer on Disinfection and Disinfectants (Graduate School).

JAMES W. SMITH, M. D.,
Chief, Prison Sanitation Division, Bilibid Prison,
Lecturer on Prison Sanitation (Graduate School).

VICENTE DE JESUS, M. D.,
Assistant Director of Health,
Lecturer on Tuberculosis and on the Care of the "Children of the State" (Graduate School).

ALFRED GARTAN, M. D.,
Medical Inspector, Bureau of Health,
Lecturer on Social Diseases (Graduate School).

PROCESO GABRIEL, M. D.,
Municipal Physician, Bureau of Health,
Lecturer on Infant Mortality (Graduate School).

LECTURERS ON SPECIAL TOPICS—Continued

Lecturer on Life Insurance Medicine (Graduate School).

THOMAS J. JACKSON, M. D.,
Medical Inspector, Bureau of Health,
Lecturer on Dangerous Communicable Diseases (Graduate School).

JUAN AUSTIN,
Assistant Statistician, Bureau of Health,
Lecturer on Vital Statistics.

ASSISTANTS

MARY GLENN BUTLER,¹
Department of Anatomy.

VICTORIANO LUNA, M. D.,¹
HERMINIO E. VELARDE, M. D.,
Department of Eye, Ear, Nose, and Throat.

PRIMITIVO ELIZALDE, M. D.,
ARTEMIO LEJANO, M. D.,
Department of Medicine.

HILARIO T. FELICIANO, M. D.,
GUILLERMO RUSTIA, L. M.,
Department of Obstetrics.

BERNARDO SAMSON, B. A., Ph. G., M. D.,
Department of Pathology and Bacteriology.

RAFAEL M. SANTOS, M. D.,²
ELIAS DOMINGO, M. D.,
Department of Pediatrics.

ISABELO CONCEPCION, M. D.,
Department of Physiology.

GERVACIO SANTOS, M. D.,
MARTIN BALTAZAR, M. D.,²
TEODORO VALERIO, M. D.,
Department of Surgery.

¹ Resigned.

² Absent on scholarship.

HISTORY OF THE COLLEGE OF MEDICINE AND SURGERY¹

The College of Medicine and Surgery is an outgrowth of the educational system instituted throughout these Islands by the Philippine Commission, and it is also a natural development of the Bureau of Science and the Bureau of Health.

The movement looking toward the establishment of such a school had its origin at the Second Annual Meeting of the Philippine Islands Medical Association in 1905, at which meeting the proceedings demonstrated the great need of supplying physicians to the people of these Islands. Statistics showed that there was one physician to each 21,209 of the population of the Archipelago, or to each 430 square miles of territory.

The Philippine Medical School was established by the Philippine Commission as the first department of the future University of the Philippines and was opened for the instruction of students June 10, 1907.

The Philippine Medical School was founded in accordance with the following Act:

Act No. 1415.—An Act establishing a Medical School and defining the manner in which it shall be controlled and conducted.

By authority of the United States, be it enacted by the Philippine Commission, that:

SECTION 1. There is hereby established in the city of Manila a medical school for the purpose of giving instruction to qualified students. It shall be known as the Philippine Medical School.

The school is hereby made a body corporate, but shall be reincorporated under the new corporation law as soon as the same is enacted.

SEC. 2. The powers of the corporation until reincorporated as above provided are hereby vested in a body to be known as "the board of control of the Philippine Medical School" which shall consist of the Secretary of Public Instruction, the Secretary of the Interior, one member of the Philippine Commission, and one other member to be designated by the Governor-General. The dean of the faculty of the school, after the establishment of said faculty, also shall be a member of the board of control.

SEC. 3. The board of control shall have the following powers:

(a) To receive endowments and bequests and to provide for their investment and disbursement according to the conditions of the endowment or bequest.

¹ The College of Medicine and Surgery was established by the Government of the Philippine Islands as the Philippine Medical School in accordance with Acts Nos. 1415 and 1870.

(b) To fix the matriculation fee, the graduation fee, and fees for laboratory courses.

(c) To receive and appropriate for the ends specified by law such sums as may be provided for the support of the school by legislation of the Philippine Commission.

(d) To recommend to the Governor-General, for appointment, the faculty of the school and fix the duties and responsibilities of its members, subject to the provisions of this Act.

(e) To confer the degree of Doctor of Medicine upon such persons as are recommended by the faculty.

(f) To make to the Philippine Commission recommendations in regard to the school and to present estimates for appropriations necessary for its maintenance.

(g) To make all necessary by-laws.

SEC. 4. Upon request of the board of control, heads of Bureaus and Offices of the Insular Government are authorized to loan such apparatus and supplies as may be required and to detail employees for duty in the Medical School, and employees so designated shall perform such duty and the time so employed shall count as part of their prescribed service to the Government. Bureaus and Offices loaning supplies to the Medical School shall, if the same are expended by the school, be reimbursed from the appropriation against which the expenses of the Medical School are a proper charge.

SEC. 5. The public good requiring the speedy enactment of this bill, the passage of the same is hereby expedited in accordance with section two of "An Act prescribing the order of procedure by the Commission in the enactment of laws," passed September twenty-sixth, nineteen hundred.

SEC. 6. This Act shall take effect on its passage.

Enacted, December 1, 1905.

The Philippine Medical School became a college of the University of the Philippines, and its name was changed to the "College of Medicine and Surgery," by section 6, paragraph (b), of Act 1870, which, as amended by Act No. 2024, reads as follows:

To provide for the establishment of a College of Liberal Arts; a College of Law; a College of Social and Political Science; a College of Medicine and Surgery; a College of Pharmacy; a College of Dentistry; a College of Veterinary Science; a College of Engineering; a College of Mines; a College of Agriculture; and a School of Fine Arts; and colleges which the Legislature may provide for by appropriation: *Provided*, That the Board of Regents may establish these colleges or any of them as soon as in its judgment conditions shall favor their opening and funds shall be available for their maintenance: *And provided further*, That the Board of Regents, by and with the approval of the Governor-General, shall have the power to combine two or more of the colleges authorized by this Act, in the interests of economy and efficiency: *And provided further*, That the Philippine Medical School, as established by Act Numbered Fourteen hundred and fifteen, as amended, shall become the College of Medicine and Surgery of the Philippine University as soon as two or more colleges of the University of the Philippines shall have been established and in actual operation.

On December 8, 1910, the provisions of Act No. 1870 having been complied with, the control and management of the school

passed to the Board of Regents, and in accordance with said Act the name was changed to "College of Medicine and Surgery."

THE HOSPITAL AND MEDICAL SCHOOL BUILDINGS

In the year 1908 the Philippine Commission appropriated the sum of ₱780,000 for the construction of a modern hospital of reinforced concrete, planned on the pavilion system, to accommodate 350 patients. Additional wards can be added in the future, the final capacity being 1,500 patients. This institution, known as the Philippine General Hospital, was completed and opened to the public on September 1, 1910. At the time of providing for the hospital the Philippine Commission set aside the sum of ₱250,000 for a Medical School laboratory building, to be erected on the same campus as the Bureau of Science and the hospital.

The Medical School building was completed and opened for class work and instruction on July 1, 1910. It is a modern reinforced concrete structure with a total frontage of 68.54 meters, embracing a main entrance flanked by general offices and faculty room, of 18.40 meters width, and two wings of 25.07 meters each. The two wings are 15 meters deep.

In one wing on the first floor is the general laboratory of bacteriology and pathology, pathological museums, and private laboratory of the chief of the department. The other first-floor wing is occupied temporarily by the laboratory chemistry of the College of Liberal Arts.

In one wing of the second floor are located the laboratory of histology and embryology, the library and anatomical museum, and the private laboratories of the chiefs of the departments of anatomy and zoölogy. In the other wing is the general laboratory of physiology, the laboratory of physiological chemistry, an operating room for animals, and the private laboratory of the chief of the department.

The main building, or center, is 18.40 meters wide by 50 meters deep. On the ground floor are the general office, faculty room, main corridor or lobby, storeroom, autopsy room and cold storage room for bodies. On the second floor are the laboratory of pharmacology, the private laboratory of the chief of that department, two general lecture rooms and an amphitheater equipped with a reflectoscope. Each lecture room has a seating capacity of about fifty students; that of the amphitheater is about one hundred and twenty. The third floor of the building is given over to the department of anatomy. It is divided into two dissection rooms, cross-section, brain, and osteology rooms,

and a private laboratory of the chief of the department of anatomy. All these floors are equipped with modern wash and toilet rooms.

The city morgue is located in the College of Medicine and Surgery building. All autopsies are performed by the department of pathology, and the material is available for study by the students.

Animal houses are located on the same campus as the College of Medicine and at Pandacan.

CLINICAL FACILITIES

The services for the teaching of clinical medicine and surgery consist in the control of 200 beds in the Philippine General Hospital. Further opportunities are afforded by Bilibid Prison Hospital; the Hospital for Infectious Diseases at San Lazaro, with its departments for incurable tuberculosis, smallpox, diphtheria, plague, cholera, and other dangerous communicable diseases; San Juan del Monte Tuberculosis Sanitarium; the Gota de Leche for the feeding and care of abnormal and underdeveloped children; the Free Dispensary of the Philippine General Hospital; and Tuberculosis Free Dispensaries of the city of Manila.

The Philippine General Hospital is a large, modern, concrete, well-equipped pavilion hospital for the care of acute and curable diseases. It is administered, as are all other Government hospitals, by the Bureau of Health; its professional staff is largely made up of the faculty of the College of Medicine and Surgery of the University of the Philippines. This institution with its Free Dispensary is caring for about 35,000 patients annually. The Bilibid Prison Hospital draws its material from the inmates of the prison and is a valuable source of teaching material, particularly in those medical and surgical conditions peculiar to warm countries.

The infectious disease hospital at San Lazaro is well equipped for the care of dangerous, contagious, and epidemic diseases, and the material provided in this institution is ample for the instruction of students in this class of diseases.

The San Juan Tuberculosis Sanitarium, the free dispensaries of the city, and Gota de Leche, all furnish a great deal of outpatient material for teaching purposes.

The large number of patients visiting the various departments of the Free Dispensary of the Philippine General Hospital has offered excellent opportunity for dispensary teaching and also for supplying the hospital with clinical material for teaching. Dur-

ing the year 1912, there were 26,717 patients making "first visits" while the total number of visits was 86,019. Of these "first visits" the various departments shared as follows: Medicine, 10,749; surgery, 5,723; skin, 1,220; obstetrics, 224; eye, ear, nose, and throat, 4,245; neurology, 226; genito-urinary, 441; children, 2,183; and dental, 1,666.

The teaching staff of the medical faculty and the hospital staff are in charge of the dispensary material. Students are offered rare opportunities for seeing a wide range of diseases and instruction is given in the various departments. A new addition to the dispensary is now under construction, and with the 10 additional examining and treatment rooms and the waiting room, approximately 30 meters long, a great increase is expected in the number of patients treated during the next year, and even better facilities for teaching are anticipated.

Taken altogether, the college has under its control more valuable clinical material, covering the widest possible range of disease conditions, than it can possibly use to the best advantage of the students.

LIBRARY FACILITIES

The library of the Bureau of Science is open to the students of the College of Medicine and Surgery. This library of 20,000 bound volumes and 18,000 unbound pamphlets is particularly rich in medical literature, including complete files of all the important medical publications.

MICROSCOPES AND LABORATORY APPARATUS

The college is equipped with a sufficient supply of microscopes and other clinical and laboratory apparatus for the use of the students.

Owing to the constant use that is made of microscopes during the laboratory courses and in clinical studies, each student must have a microscope for his own use, and it is recommended that he purchase one. Otherwise the students may obtain microscopes upon a memorandum receipt from the college, and the payment of a rental of ₱5 a semester. The microscopes must be returned in good condition, or charges for repairs will be made against the students.

DEPOSIT

Each student must deposit ₱20 before beginning any laboratory course. The cost of all apparatus and special supplies issued to the student will be charged against this deposit.

Further deposits will be required, if needed, to cover the cost of supplies issued to the student. The student will be credited at the end of the course for the apparatus and supplies returned to the property clerk in good condition.

FEES

A laboratory fee of ₱5 per semester will be charged in those laboratory courses of not more than nine hours a week; ₱10 will be charged for laboratory courses of more than nine hours a week.

Every student will pay an athletic fee of ₱1 per semester which will be turned into the treasury of the Athletic Association.

For fees in the Graduate School of Tropical Medicine and Public Health, see page 167, and for the School of Pharmacy, page 193.

ADMISSION REQUIREMENTS

The minimum requirement for admission to the College of Medicine and Surgery is a satisfactory completion of one year's college work in the College of Liberal Arts, University of the Philippines, or a school having equal standing, including the following courses; Physics, chemistry, biology, one modern language of college grade; of each of these subjects not less than six semester units.¹

Candidates who have sufficient time and means at their disposal are advised to complete the two-year Medical Preparatory Course leading to the degree of Bachelor of Arts in the College of Liberal Arts before undertaking the study of medicine.

All candidates who desire to enter the College of Medicine and Surgery must pass a physical examination before being admitted. This examination will be held at the College of Medicine and Surgery from June 25 to June 30, 1914.

The ability to speak and write good English is a necessary qualification for admission to the College of Medicine and Surgery.

ADMISSION TO THE FIRST-YEAR CLASS

Application for admission to the first-year class of the College of Medicine and Surgery should be made directly to the Dean of the College at least two weeks before the opening of the first semester. Such applications will be referred, through the Committee on Admissions of the College, to the Faculty of the College

¹ These requirements are the standard set by the Association of American Medical Colleges for the schools in Class A. This college is a member of the association.

of Medicine and Surgery for definite action and will then be certified to the secretary of the University for registration.

A candidate from another institution should forward with his application an official certificate from the college or university already attended of (1) honorable dismissal, (2) time of attendance with the amount of work that he has completed, and (3) a detailed statement of the work which he has completed, including the numerical or other grades attained. Such a certificate should be accompanied by the catalogue or announcement of the institution attended.

ADMISSION TO ADVANCED STANDING

Applications for admission to advanced standing in the College of Medicine and Surgery shall be addressed to the Dean and should be accompanied by an official certificate from the college or university already attended. Such application will be referred for investigation and definite action, through the Committee on Admissions of the College, to the faculty of the College of Medicine and Surgery, and will then be forwarded to the secretary of the University for registration.

SPECIAL STUDENTS

Persons of requisite age may be admitted to courses in the College of Medicine and Surgery as special students not candidates for a degree by the faculty of the College of Medicine and Surgery. Such applicants must be recommended by the College Committee on Admissions and by the chief of the department in which they desire to take a large part of their work, to the faculty of the College of Medicine and Surgery.

GRADUATE STUDENTS

Candidates for the degree of Master of Science may take their major subjects in the College of Medicine and Surgery. Such students must have already completed two years of well-chosen work in addition to the requirements now in force for the degree of Bachelor of Arts in the University of the Philippines and must pursue their studies under the direction of a committee of the University Council.

The courses leading to the degrees of Doctor of Tropical Medicine and Doctor of Public Health are open to any graduate in medicine from the College of Medicine and Surgery, or from other schools granting a degree of Doctor of Medicine or its equivalent, which is recognized by the faculty as equivalent to its degree of Doctor of Medicine. (For particulars of these courses see p. 168 et seq.)

EXAMINATIONS AND CONDITIONS

Examinations will be held at the end of each semester, upon the completion of each subject, and at such other times as the teacher in charge of a course may elect.

Candidates may be admitted and students passed from one class to the next with a condition in one or more subjects, at the discretion of the faculty. In general, no student will be admitted with more than two conditions; conditions in entrance subjects must be removed before the beginning of the school year following that in which they were obtained.

Conditions in subjects of the medical course must be removed before the beginning of the succeeding school year.

Candidates will be admitted to examinations for advanced standing only upon special authority granted by the faculty. Such examinations will be held only at the time of the regular examinations.

REQUIREMENTS FOR GRADUATION

At the end of his medical studies, a student who has passed all of the required examinations satisfactory will receive the degree of Doctor of Medicine under the following conditions:

1. He must be twenty-one years of age and of a reputable character.
2. He must have satisfied all the requirements for admission to this college, and completed as a regularly matriculated medical student a five years course of medical study equivalent in its standards to that given here. The last three years must be spent in this college, unless permission for a different arrangement has been obtained from the faculty.
3. His graduation must then be recommended by the University Council and approved by the Board of Regents.

PRIZES

The Germinal Tobacco Factory offers a prize of a microscope or a set of surgical instruments to the student of the graduating class having the highest general average.

Reinhard Rembe, chief of the Department of Ophthalmology, Otology, Laryngology, and Rhinology, offered the following prizes to the students of the graduating class of 1914 who passed the best examination in diseases of the eye, ear, nose, and throat:

First prize:—Complete oculists' trial set of lenses made by the American Optical Company, including Snellen's distance

chart, Jaeger's reading chart, astigmatic letter chart, and astigmatic clock dial.

Second prize.—Fuchs' "Ophthalmology" and a textbook on diseases of the eye, ear, nose, and throat.

SIXTH OR HOSPITAL YEAR.

The hospital year of forty-eight weeks' work is optional except for those physicians who desire to enter the clinical branches of the Government service, in which case thirty-six weeks of satisfactory hospital service is required.

The year's work is divided into 12 units of four weeks' continuous service each, as follows: Ambulance and receiving service, four weeks; medicine, eight weeks; infectious diseases, four weeks; surgery, eight weeks; obstetrics, four weeks; clinical laboratory, four weeks; ophthalmology, otology, laryngology, and rhinology four weeks; pediatrics, four weeks; pathology, four weeks; elective, four weeks.

With the approval of the Director of Health, physicians taking the hospital year will be given intern service in the Philippine General and San Lazaro Hospitals.

Physicians who take twenty-four or more weeks of this service will be given certificates showing the work performed.

For a more detailed outline of the instruction, see Schedule of Courses, page 157.

CURRICULUM

A. SCHOOL OF MEDICINE

The curriculum is organized under eleven departments. Chemistry, except physiological chemistry, is taught in the College of Liberal Arts.

- I. Anatomy (including histology, embryology, and neurology).
- II. Physiology (including physiological chemistry).
- III. Pharmacology.
- IV. Pathology (including bacteriology, and the city morgue).
- V. Medical Zoölogy (including protozoölogy, helminthology, and general medical zoölogy).
- VI. Hygiene (including general hygiene, chemical laboratory, and biologic laboratory hygiene).
- VII. Medicine (including clinical medicine, tropical medicine, physical diagnosis, clinical diagnosis, clinical microscopy, dermatology, nervous diseases, mental diseases, applied therapeutics, jurisprudence, and ethics).
- VIII. Pediatrics.
- IX. Surgery (including gynecology, orthopedics, and genito-urinary surgery).
- X. Obstetrics.
- XI. Ophthalmology, otology, laryngology, and rhinology.

Outline of courses in the School of Medicine, College of Medicine and Surgery.

	First year.		Second year.		Third year.		Fourth year.		Fifth year.		Total.	Total for departments.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.	Seventh semester.	Eighth semester.	Ninth semester.	Tenth semester.		
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.
Chemistry (College of Liberal Arts):												
2. Organic	153	153									306	459
3. Qualitative		153									153	
Anatomy:												
1. Systematic	357	357	200								914	1,470
2. Histology	153										153	
3. Embryology		153									153	
4. Neurology			150								150	
5. Topographic*			100								100	
Hygiene and public health:												
1. Lecture								51			51	221
2. Communicable diseases									34		34	
3. Laboratory:												
3a. Biological									68		68	
3b. Chemical									68		68	
Medical Zoölogy:												
1. Protozoölogy						51					51	248
2. Helminthology							153				153	
3. Entomology							34				34	
4. General medical zoology								10			10	
Medicine:												
1. Physical diagnosis					68	102					170	928
2. Clinical diagnosis						51					51	
3. Clinical microscopy						102	68				170	
4. Legal medicine										10	10	
5. Nervous and mental diseases									51		51	
6. Dermatology										34	34	
7. Tropical medicine								17		17	34	
8. Applied therapeutics								34	34		68	
9. Medical research								17		17	34	
10. Ward classes							51	34	51	34	170	
11. Conference							34	34	34	34	136	
12. Clinico-pathologic conference	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	
Obstetrics:												
1. Normal								51			51	253
2. Operative									51		51	
3. Clinical										51	51	
4. Practical											100	

* Elective.

b Time credited to Pathology.

Outline of courses in the School of Medicine, College of Medicine and Surgery—Continued.

	First year.		Second year.		Third year.		Fourth year.		Fifth year.			Total for departments.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.	Seventh semester.	Eighth semester.	Ninth semester.	Tenth semester.	Total.	
Ophthalmology, etc:	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.
1. Ophthalmology									85		85	238
2. Ear, nose, and throat										153	153	
Pathology:												
1. Autopsies					25	25	(a)	(a)	(a)	(a)	50	849
2. General					130						130	
3. Systemic					125	153					278	
4. Systemic								34			34	
5. Clinico-pathologic conference							25	26	25	26	102	
6. Bacteriology				255							255	
Pediatrics:												
1. Hygiene and feeding							34				34	153
2. Clinic							34				34	
3. Clinic							34				34	
4. Conference								51			51	
Pharmacology:												
1a. Pharmacodynamics					170						170	272
1b. Therapeutic pharmacology					34						34	
2. Pharmacal therapeutics					17						17	
3. Prescription writing					17						17	
6. Journal club					34						34	
Pharmacy:												
8. Medical pharmacy					102						102	102
Physiology:												
1. General				272							272	408
2. Physiologic chemistry				136							136	
Surgery:												
1. Clinic								102	102		204	964
2a. Operative on cadaver										20	20	
2b. Operative on animals										16	16	
3a. Dispensary						102					102	
3b. Dispensary							102			66	168	
4a. Principles of surgery										34	34	
4b. Principles of surgery							34				34	
5. Ward visits									51		51	
6. Genito-urinary								51			51	
7. Minor surgery						51					51	
8. Gynecology								51			51	
9. Fractures and dislocations											51	
10. Surgical pathology						51					51	
11. Surgical anatomy										17	17	

* Time credited to courses 2, 3, 4.

COURSES OF INSTRUCTION

ANATOMY

ELBERT CLARK, B. S.,¹ Associate Professor of Anatomy, Chief of Department.
 RUSKIN MARION LHAMON, B. A., M. D.,¹ Assistant Professor of Anatomy.
 FERDINAND SCHMITTER, B. A., M. D.,² Instructor in Anatomy.
 JESUS GONZALES, B. A., M. D.,² Assistant in Anatomy.
 MARY GLENN BUTLER, Assistant in Anatomy.
 ARTURO GARCIA, M. D., Assistant in Anatomy.

The courses of study provide for instruction in gross human anatomy, histology, embryology, elementary neurology, and topographical anatomy. Ample material, both fresh and preserved, is provided, and a good supply of well-chosen models is always available for student use. The laboratories for class work and for research are well equipped with modern apparatus. The following textbooks are recommended: For systematic anatomy, Cunningham, Morris, Piersol, Cunningham's Manual of Practical Anatomy, Barker's Laboratory Manual of Anatomy, Sabotta and McMurrich's Atlas and Textbook of Anatomy, Spalteholz's Hand Atlas of Human Anatomy; for histology, textbook of Histology by Stöhr, textbook of histology by Böhm-Davidoff-Huber; for embryology, The Development of the Human Body by McMurrich. A good reference library is available.

1. *Systematic Anatomy*.—This course embraces the complete dissection of the human body, the bones and joints, and a study of cross sections.

Section A.—Dissection of the extremities; lectures, demonstrations, and recitations.

[First year, first semester; 357 hours.

Section B.—Dissection of head and neck; lectures, demonstrations, and recitations.

[First year, second semester; 357 hours.

Section C.—Dissection of the abdomen and thorax; lectures, demonstrations, and recitations.

[Second year, first half of the first semester; 200 hours.
 Assistant Professor LHAMON.
 Doctor GONZALES.
 Doctor GARCIA.

2. *Histology*.—Lectures, demonstrations, and laboratory work with laboratory technique. Fresh and stained material is used.

[First year, first semester; 153 hours.
 Doctor SCHMITTER.
 Mrs. BUTLER.

3. *Embryology*.—Lectures, recitations, and laboratory work based on a study of the development of the duck and the pig.

¹ Resigned.

² Temporary appointment.

A certain part of the time is given to the study of the relations in the human.

[First year, second semester; 153 hours.
Assistant Professor LHAMON.
Mrs. BUTLER.

4. *Elementary Neurology*.—Dissections and microscopic study of the human brain and cord, comparative study of the organs of special sense; lectures, recitations, and laboratory work.

[Second year, first semester; 150 hours. ———.

5. *Topographical Anatomy*.—A laboratory course, including special dissections, study of preparations, and transverse sections, and models. Anatomy I is required for entrance to this course.

100 hours. ———.

CHEMISTRY

Courses in chemistry, except physiological chemistry, are given by the Department of Chemistry of the College of Liberal Arts.

2. *The Compounds of Carbon*.—Lectures, recitations, and laboratory work.

[First year; 306 hours.

3. *Qualitative Analysis, Inorganic*.—Lectures, recitations, and laboratory work.

[Second year, first semester; 153 hours.

[NOTE.—For physiological chemistry see Department of Physiology, page 142.]

HYGIENE

VICTOR GEORGE HEISER, D. Sc., M. D., Professor of Hygiene, Chief of Department.
SALVADOR VIVENCIO DEL ROSARIO, B. A., M. D., Assistant Professor of Hygiene.
JAMES W. SMITH, M. D., Lecturer in Prison Sanitation and Prison Hospital Administration. (Graduate School only.)

SAMUEL C. GURNEY, M. D., Lecturer in Military Hygiene.

ALMON PLINY GOFF, M. D., Lecturer in Disposal of the Dead. (Graduate school only.)

R. E. L. NEWBERNE, B. S., M. S., D. D. S., M. D., Lecturer in Legal Medicine.

OTTO SCHÖBL, M. D., Lecturer in Disinfection and Desinfectants. (Graduate School only.)

MANUEL GOMEZ, M. D., Lecturer in Social and Vital Statistics. (Graduate School only.)

DANIEL WEBSTER EGNER, Lecturer in Sanitary Office Administration. (Graduate School only.)

GEORGE H. GUERDRUM, Lecturer in Sanitary Hygiene. (Graduate School only.)

HARRY DRAKE GIBBS, Lecturer in Laboratory Hygiene. (Clinical Course.)

PRÓCESO GABRIEL, M. D., Lecturer in Infant Mortality. (Graduate School only.)

OTTO SCHÖBL, M. D., Lecturer in Disinfection and Desinfectants. (Graduate School only.)

VICENTE DE JESUS, M. D., Lecturer in the Care of "Children of the State" and in Tuberculosis. (Graduate School only.)

WALTER K. BEATTY, M. D., Lecturer in Social Diseases. (Graduate School only.)

H. F. SMITH, M. D., Lecturer in Quarantine. (Graduate School only.)

—————, Assistant in Hygiene. (Laboratory Division.)

In accordance with the fundamental purpose underlying the organization of the College of Medicine and Surgery, and with the adjustment of the laboratory courses, the teaching of preventive medicine receives more attention than is given to it in undergraduate courses of most medical schools. It necessarily duplicates much that usually is taught in the department of tropical medicine.

1. *Lectures in Hygiene and Sanitation*.—This course comprises all the subjects usually taught, especial attention being given to the study of water, air, food, plumbing, disposal of human wastes, control of the city's water and milk supply, infant mortality, adulteration of foods, and other fundamental principles essential to practically applied hygiene and sanitation. Textbook: Harrington, Practical Hygiene.

[Fourth year, second semester; 51 hours. Assistant Professor DEL ROSARIO.]

2. *Communicable Diseases*.—A study of the methods of combating the dangerous communicable diseases, especially those of intestinal origin like cholera, dysentery, intestinal parasites, etc.

[Fifth year, first semester; 34 hours. Professor HEISER.]

3. *Laboratory*.—(3a) *Biological*: This course consists in lectures and practical work in bacteriologic and other biologic technique required to make the student familiar with the practical examination of water, air, milk, and food, etc.

[Fifth year, first semester; 68 hours. ———.]

(3b) *Chemical*: The course consists in talks and laboratory work in the chemical technique required to enable the student to become familiar with the practical examination of water, air, milk, foods, etc.

[Fourth year, second semester; 68 hours. ———.]

MEDICAL ZOOLOGY

ERNEST LINWOOD WALKER, B. A. S., S. B., S. D., Associate Professor of Medical Zoology, Chief of Department.

DAVID GIFFORD WILLETS, Ph. B., M. D.,¹ Assistant Professor of Medical Zoology.

CHARLES SUMNER BANKS, M. S., Lecturer on Medical Entomology.

———, Assistant, Medical Zoology.

Instruction in medical zoölogy consists in lectures, laboratory courses and practical work. The work of the department is divided into three sections—that required for under-graduate

¹ On leave.

students; that required for students of the School of Tropical Medicine and Public Health; and Research Courses.

The work required for undergraduate students comes under Courses Nos. 1, 2, 3, 4.

The work required for graduate students in the School of Tropical Medicine and Public Health comes under Courses Nos. 5, 6, and 8. Research courses are Nos. 7, 9, and 11.

1. *Protozoölogy Lectures and Laboratory Work*.—The lectures will take up systematically the morphology, development, classification, and pathogenesis of the parasitic protozoa, and the diagnosis and prophylaxis of the protozoan diseases of man. The laboratory work will be devoted to the study of fresh material and stained preparations of parasitic protozoa to illustrate and supplement the lectures and to give practice in the diagnosis of protozoan diseases of man.

[Third year, second semester; 51 hours. Associate Professor WALKER.]

2. *Helminthology*.—Lectures and laboratory work. The aim of this course is to give students training in the diseases of man caused by the parasitic worms and such knowledge of the life cycles of the parasites and of parasites themselves as will fit the student for the general practice of medicine. It deals chiefly with the diagnosis, treatment and prophylaxis of verminous diseases.

[Fourth year, first semester; 153 hours. Assistant Professor WILLETS.]

3. *Medical Entomology*.—This course will include the study of poisonous insects and arachnids, insects parasitic on man, domestic insects, biting flies, mosquitoes, and pseudoparasites. Attention will be paid to the character, habits, and classification of insects and arachnids but particularly to their role in the transmission of diseases, and the production of traumatisms and physiological disturbances, and to prophylactic and remedial measures.

[Fourth year, first semester; 34 hours. Mr. BANKS.]

4. *General Medical Zoölogy*.—Required of fourth-year medical students, and of candidates for the degrees of Doctor of Tropical Medicine and Doctor of Public Health, if they have not had a similar course. This course deals with all animals other than those covered by protozoölogy, helminthology, and entomology, which are more or less closely related to diseases of man such as pisces, amphibia, reptilia, and mammalia.

[Fourth year, second semester; 10 hours. Assistant Professor WILLETS.]

MEDICINE

(Clinical medicine, tropical medicine, nervous and mental diseases, legal medicine, medical economics and ethics.)

WILLIAM EVERETT MUSGRAVE, M. D., Professor of Medicine, Chief of Department.
 ARISTON BAUTISTA y LIN, M. D., Professor of Clinical Medicine and Therapeutics.
 LUIS GUERRERO, M. D., Associate Professor of Tropical Medicine.
 ANTONIO GUILLERMO SISON, B. A., M. A., M. D., Assistant Professor of Medicine.
 PERPETUO GUTIERREZ, M. D., Instructor in Medicine.
 ROBERT E. LEE NEWBERNE, M. D., Lecturer, Nervous and Mental Diseases and Legal Medicine.
 SAMUEL C. GURNEY, M. D., Lecturer, Medical Economics and Ethics.
 THOMAS J. JACKSON, M. D., Lecturer, Dangerous Communicable Diseases.
 ELIAS DOMINGO, M. D., Assistant in Medicine.
 PRIMITIVO F. ELIZALDE, M. D., Assistant in Medicine.
 ARTEMIO LEJANO, M. D., Assistant in Medicine.

Instruction in the Department of Medicine is given during the third, fourth, and fifth years of the medical course. With the large variety and abundance of clinical material now available, didactic lectures are reduced to a minimum as a method of teaching in this department, and instruction is given by ward and dispensary talks, actual bedside work by the students, and conferences for discussion of the cases studied.

Particular attention is devoted to those etiologic and clinical manifestations of diseases which are peculiar to a tropical environment, and to the diagnosis and treatment of those tropical diseases encountered in the Philippine Islands.

Clinics are given daily in the wards of the hospitals. Clinics on the exanthemata and acute infectious diseases in general are held at the Infectious Disease Hospital. Students are required to attend autopsies on cases of patients dying in the wards.

1. *Physical Diagnosis*.—The course consists in lectures, practical work on healthy persons, and later, practical demonstrations and practical work in the physical signs encountered in the principal diseases.

[Third year; 170 hours.
 Assistant Professor SISON.
 Doctor GUTIERREZ.
 Doctor DOMINGO.
 Doctor DENNY.
 Doctor ELIZALDE.
 Doctor LEJANO.]

2. *Clinical Diagnosis*.—The course consists in practical demonstrations of the manner of preparing and preserving histories and other case records; of the use and the interpretation of the findings of all important instruments of precision and diagnosis used in medicine, and practical clinical diagnostic work with patients in the Free Dispensary and Hospital. Special

attention will be given to the interpretation of symptoms common to more than one disease.

[Third year, second semester; 51 hours.
Assistant Professor SISON.
Doctor GUTIERREZ.

3. *Clinical Microscopy*.—The course consists in practical laboratory instruction with such talks and recitations as are necessary to elucidate the subject. The students will be taught the methods and practical diagnostic importance of microscopic examination of feces, urine, sputum, blood, or materials from various lesions of the skin, and of fluids obtained by aspiration.

[Third year, second semester; fourth year, first semester; 170 hours.
Associate Professor GUERRERO.

4. *Legal Medicine*.—The course consists in 10 lectures outlining the general subject of medical jurisprudence and giving particular attention to medico-legal questions in the Philippine Islands.

[Fifth year, second semester; 10 hours. Doctor NEWBERNE.

5. *Nervous and Mental Diseases*.—The course is given in addition to the instruction upon these subjects taught in the general medical courses. It consists in a series of lectures outlining the important nervous and mental diseases with particular reference to those encountered in the tropics.

[Fifth year, first semester; 51 hours. Doctor NEWBERNE.

6. *Dermatology*.—The course consists in recitations, dispensary talks, and practical experience in the skin disease clinics of the free dispensary.

[Fifth year, second semester; 34 hours. Doctor GUTIERREZ.

7. *Tropical Medicine*.—The course consists in an outline lecture discussion of tropical medicine and a more detailed consideration of some of the important diseases peculiar to warm climates.

[Fourth and fifth years, second semester; 34 hours. Associate Professor GUERRERO.

8. *Applied Therapeutics*.—The course consists in lectures, clinics, and practical work in applied therapeutics. Particular attention is given to the treatment of disease peculiar to warm climates.

[Fourth year, second semester; fifth year, first semester; 68 hours. Professor BAUTISTA.

9. *Medical Research Lectures*.—The course consists in a general outline of the unsolved and obscure problems of medicine with an analysis of the recent literature of the more important of these diseases.

[Fourth and fifth years, second semester; 34 hours.
Professor MUNGRAVE.
Assistant Professor SISON alternating.

10. *Ward Classes and Recitations*.—The course consists in recitations upon previously assigned subjects, ward talks, and practical demonstrations at the bedside.

[Fourth and fifth years; 170 hours.
 Doctor GUTIERREZ, assisted by
 Doctor ELIZALDE.
 Doctor LEJANO.
 Doctor DOMINGO.
 Doctor DENNY.]

11. *Medical Conferences*.—At these conferences interesting cases from the medical wards are presented to the classes and the question of etiology, pathology, symptoms, and diagnosis are considered in detail. Students are required to prepare complete records in writing of patients presented at these conferences, and are graded upon the thoroughness with which their work is performed.

[Fourth and fifth years; 136 hours.
 (a) Thursdays, Professor MUSGRAVE.
 (b) Saturdays, Professor BAUTISTA.]

12. *Clinic-Pathologic Conferences* (see also Pathology 5).—These conferences are given jointly by the Department of Pathology and all clinical departments, and attendance is required of all fourth and fifth year students, and all students taking graduate courses in the College. Each conference consists in a clinical and pathological review of the autopsies of the week together with a clinical and pathologic discussion of the surgical pathology material for the same time.

[Fourth and fifth years; 68 hours.
 Professor CROWELL.
 Professor MUSGRAVE.]

[NOTE.—Medical Courses 17 *a*, *b*, *c*, and *d* are Graduate-School courses, but are elective for fourth and fifth year students.]

OBSTETRICS

FERNANDO CALDERON, A. B., M. D., Professor of Obstetrics, Chief of Department.
 BALDOMERO ROXAS, A. B., M. D., Associate Professor of Obstetrics.
 HONORIA ACOSTA-SISON, M. D., Instructor in Obstetrics.
 MARIANO TOLENTINO, M. D., Instructor in Obstetrics.
 HILARION FELICIANO, M. D., Assistant in Obstetrics.
 GUILLERMO RUSTIA, M. D., Assistant in Obstetrics.

During the first semester of the fourth year the students are given a course in anatomy and physiology of pregnancy, diagnosis of uterine pregnancy, hygiene and management of pregnancy, physiology of normal labor, conduct and management of labor, asepsis in obstetrics, physiology of puerperium.

During the second semester of the fourth year operations and manipulations over the manikin, occipito-posterior, face, brow, pelvic, and transverse presentations, prolapse of cord and legs, anomalies of the bony pelvis, artificial interruption of preg-

nancy, version, forceps, pubiotomy, embryotomy, Cæsarean section. Lectures and demonstrations on pathology of pregnancy and puerperium, anomalies of expellant powers and soft passages, placenta prævia, ablatio placentæ, hemorrhage during the third stage, postpartum hemorrhage, retained placenta, adherent placenta, rupture of uterus, inversion of uterus, eclampsia, puerperal infection.

During the first semester of the fifth year the students are given a course of bedside clinical instruction upon the pathology of pregnancy, labor, and the puerperium in the maternity ward of the Philippine General Hospital.

The students in both classes are also required throughout the year to assist in the maternity ward of the Philippine General Hospital and in the out-patient department, two students being detailed every twenty-four hours in the hospital for this purpose.

1. *Normal Obstetrics*.—Lectures and recitations.

[Fourth year, first semester; 51 hours. Associate Professor ROXAS.

2. *Operative Obstetrics*.—Lectures and recitations.

[Fourth year, second semester; 51 hours. Associate Professor ROXAS.

3. *Clinical Obstetrics*.—Recitations and demonstrations.

[Fifth year, first semester; 51 hours. Professor CALDERON.

4. *Practical Obstetrics*.—Out-patient service continuing throughout the year.

[Fourth and fifth year students in rotation.

Associate Professor ROXAS.

Doctor ACOSTA-SISON.

Doctor MARIANO TOLENTINO.

Doctor HILARION FELICIANO.

Doctor GUILLERMO RUSTIA.

OPHTHALMOLOGY, OTOTOLOGY, LARYNGOLOGY, AND RHINOLOGY

REINHARD REMBE, M. D., Associate Professor of Ophthalmology, Otology, Laryngology, and Rhinology, Chief of Department.

ARISTEO R. UBALDO, B. A., L. M.,¹ Instructor in Diseases of the Eye, Ear, Nose, and Throat.

VICTORIANO LUNA, M. D., Assistant in Diseases of the Eye, Ear, Nose, and Throat.

HERMINIO E. VELARDE, M. D., Assistant in Diseases of the Eye, Ear, Nose, and Throat.

Students are required to attend a prescribed course of lectures and become thoroughly familiar with the apparatus used in examinations. The large clinical material of the hospital and free dispensary offers exceptional opportunities to select appropriate cases for lectures and demonstrations. The students thus become thoroughly familiar with the principal diseases of these specialties in all their phases.

¹ Temporary appointment.

1. *Ophthalmology*.—Instruction in ophthalmoscopy is of such scope and thoroughness as to enable the student to diagnose the ordinary intraocular morbid conditions. Particular stress is laid upon the correction of errors of refraction and the exact manipulation of the different scientific instruments for that purpose. Near the end of the first half of the semester, a number of afternoons are devoted to comparative ophthalmoscopy. The semester closes with an operative course on the cadaver and phantom.

[Fifth year, first semester; 85 hours.
Associate Professor REMBE.
Doctor UBALDO.

2. *Diseases of the Ear, Nose, and Throat*.—Students are assigned an active part, so far as possible, in all surgical operations. They are instructed in methods of anesthesia and also act as assistants.

[Fifth year, second semester; 153 hours.
Associate Professor REMBE.
Doctor UBALDO.

PATHOLOGY AND BACTERIOLOGY

BOWMAN CORNING CROWELL, B. A., M. D., C. M., Associate Professor of Pathology, Chief of Department.

ROY WALLACE HAMMACK, B. A., M. D., Assistant Professor of Pathology and Bacteriology.

JOSE HILARIO, M. D.,¹ Instructor in Pathology and Bacteriology.

BERNARDO SAMSON, Ph. G., M. D., Assistant in Pathology and Bacteriology.

———, Assistant in Pathology.

The department of pathology and bacteriology occupies the lower floor of the east wing of the building of the College of Medicine and Surgery. This contains a large well-equipped general laboratory for teaching purposes, adjoining which are four smaller rooms. Of these latter, one is occupied by the preparators, two by the teaching staff, and one as the museum of pathological anatomy.

In the museum are about 1,500 specimens illustrating the various phases of disease, especially those being collected which demonstrate lesions more frequently encountered in tropical countries. This museum has been enriched by the transfer of the museum of the Bureau of Science which contains many specimens illustrating experimentally produced lesions in laboratory animals and valuable collections of series of cases on which was based much of the pioneer scientific work in the Philippine Islands. This material is well catalogued and is being constantly increased by additions from the operating rooms of the Philip-

¹ Abroad on scholarship.

pine General Hospital and the autopsy room. Complete records of the last 3,000 autopsies performed in the department are bound in readily accessible form and the catalogue of the clinical material is easily available. The morgue and autopsy room are built on modern lines with facility for the refrigeration of 18 bodies by means of ammonia gas. This being the official city morgue and that of the Philippine General Hospital and all of the autopsies being performed under the direction of the Chief of this Department, a minimum of 500 autopsies annually are performed, providing a wealth of material for teaching purposes.

Histological preparations from the most of this material are in available form.

The obligatory courses in this department extend throughout the second semester of the second year, the entire third year, and second semester of the fourth year in the College of Medicine and Surgery. Elective courses are offered to students of the fourth and fifth years and the weekly clinico-pathologic conferences are open to the students and the medical profession at large. During the fourth and fifth years, students who have seen the clinical aspects of cases dying in the wards of the Philippine General Hospital are frequently enabled to see their pathologico-anatomical aspects.

1. *Autopsies*.—Attendance at autopsies is obligatory during the third year and optional during the fourth and fifth years in the College of Medicine and Surgery. Students are instructed in the methods of performing autopsies and the proper interpretation and recording of the findings.

Opportunity is offered each student to perform autopsies under the direction of one of the teaching staff, and to make the necessary bacteriological and histological examinations.

[50 hours.

Associate Professor CROWELL.

Assistant Professor HAMMACK.

2. *General Pathology*.—The basis of this and the following course is the systematic instruction in pathological histology. This is abundantly supplemented by demonstrations, autopsies, lectures, and recitations.

[Third year, first semester (first half) ; 130 hours.

Associate Professor CROWELL.

Assistant Professor HAMMACK.

Doctor SAMSON.

3. *Systemic Pathology*.—This course follows the preceding and extends through the remainder of the year. The pathological processes as they occur in the various viscera are abund-

antly demonstrated both grossly and histologically. Lectures and recitations supplement the laboratory work.

[Third year, first and second semester; 273 hours.
Associate Professor CROWELL.
Assistant Professor HAMMACK.
Doctor SAMSON.

4. *Systemic Pathology*.—A lecture and demonstration course dealing with subjects less susceptible to study in the systematic laboratory course.

[Fourth year, second semester; 34 hours. Associate Professor CROWELL.

5. *Clinical and Pathological Conferences*.—The clinical histories of fatal cases from the Philippine General Hospital are presented and discussed by members of the hospital staff and the pathological lesions of the cases are demonstrated.

[Fourth and fifth years; 102 hours.

6. *Bacteriology*.—Bacteriology is taught by means of lectures, recitations, and laboratory work. In the lectures are considered general bacteriology, infection, and immunity. In the laboratory the important pathogenic bacteria are studied culturally and microscopically and the pathogenic properties of several species are demonstrated by animal inoculation. The diagnosis of various diseases, such as diphtheria, typhoid, cholera, and bacillary dysentery by bacteriological and serological methods, is also considered.

[Second year, second semester; 255 hours.
Assistant Professor HAMMACK.
Doctor SAMSON.

6a. *Bacteriology*.—See School of Pharmacy, page 200.

PEDIATRICS

JOSE ALBERT, M. D., Professor of Pediatrics and Chief of Department.
RAFAEL M. SANTOS, M. D.,¹ Assistant in Pediatrics.

More than one-half of the total patients seen in the general practice of medicine in the Philippines are children. Furthermore, the excessive infant mortality emphasizes the importance of special knowledge of the diseases of children in this country and justifies the extra time devoted to the subject of pediatrics.

The instruction is based on the fundamental principle that the child is no mere miniature adult, but has its own independent physiology, pathology, and therapeutics.

The courses are arranged to furnish a general survey of the subject through lectures, conferences, recitations and practical

¹ Absent on scholarship.

work in the dispensary, and in the wards of the Philippine General Hospital. Students are required to attend autopsies of cases of patients dying in the wards. Clinics on the exanthemata and contagious diseases are held in the Infectious Disease Hospital.

1. *Infant Hygiene and Feeding*.—A conference and recitation course in the anatomy, physiology, hygiene, and dietetics of infancy.

[Fourth year, first semester; 34 hours. Doctor SANTOS.]

2. *Pediatric Clinic*.—Clinical conference and recitations in the methods of examination of the child with demonstration of clinical cases.

[Fourth year, first semester; 34 hours. Professor ALBERT.]

3. *Pediatric Clinic*.—Clinical conference and recitations in the diseases of new-born nurslings.

[Fourth year, first semester; 34 hours. Professor ALBERT.]

4. *Clinic and Conference Course*.—The typical disorders of infancy and childhood including scurvey, rickets, convulsive disorders, so-called gastro-enterities, beriberi, broncho-pneumonia, dermatosis, acute and chronic infections, meningitis, paralysis.

[Fourth year, second semester; 51 hours. Professor ALBERT.]

PHARMACOLOGY

ALFRED OGLE SHAKLEE, B. S., M. D.,¹ Associate Professor of Pharmacology, Chief of Department.

ANDREW GROVER DU MEZ, Ph. G., B. S., M. S.,² Assistant Professor of Pharmacology.

FELIX HOCSON, A. B., Ph. C., Instructor in Pharmacology.

DANIEL DE LA PAZ, M. D., Instructor in Pharmacology.

The province of the department of pharmacology embraces the fields occupied by pharmacodynamics, pharmacal therapeutics and toxicology. The courses of instruction offered aim to furnish a knowledge of drugs and a training in their study and applications sufficient to meet the needs of the physician and surgeon. In addition the attempt is made to give them in such a manner as to arouse the spirit of research in the student and to foster such research along all pharmacological lines.

The student is expected to familiarize himself with some modern text on the subject under study and to make intelligent use of reference books in connection with his laboratory and lecture work.

For general pharmacology, the student is recommended to secure some such book as Sollmann's Textbook of Pharmacology,

¹ On leave.

² Acting chief of department.

Cushny's Pharmacology and Therapeutics or Wood's Therapeutics, its Principles and Practice.

1a. *Experimental Therapeutic Pharmacodynamics*.—A laboratory course in pharmacodynamics in which the student studies the effect of drugs upon the animal organism, and becomes practically acquainted with the methods of investigation and the character of the data underlying pharmacal therapeutics. The course includes the physiological standardization of drugs. In addition it serves as a background to the lectures in the course in therapeutic pharmacology.

[Third year, first semester; 170 hours.
Associate Professor SHAKLEE.
Doctor DE LA PAZ.

1b. *Therapeutic Pharmacology*.—A lecture and recitation course which treats of the pharmacological action of drugs. The important pharmaceutical preparations, both official and semi-official, and the methods of administration are briefly discussed. The drugs are considered in groups based upon similarity of action. The course also includes a discussion of the forms of poisoning of therapeutic importance, and is accompanied by prescription writing.

[Third year, first semester; 34 hours. Associate Professor SHAKLEE.

2. *Pharmacal Therapeutics*.—A lecture course on the application of drugs to the treatment of disease and of poisoning. In this course the use of drugs is viewed from the standpoint of the practitioner, and the point of departure in the study is the disease. Diseases are discussed in groups based upon similarity of treatment, and the aim is to associate the salient facts of drug therapy in such a way as to facilitate their recall in the presence of the condition demanding them. The course is accompanied by prescription writing.

[Third year, first semester; 17 hours. Associate Professor SHAKLEE.

3. *Prescription Writing*.—A lecture and recitation course supplementing the laboratory course in medical pharmacy. It will consider the combinations of drugs with reference to their pharmacologic and therapeutic properties, dosage, and administration. Approved formulæ will be studied and criticised. The essentials of prescription Latin will be presented; prescriptions will be written, discussed, and corrected.

[Third year, first semester; 17 hours. Associate Professor SHAKLEE.

4. *Toxicology*.—A lecture and laboratory course designed to give students of medicine a thorough knowledge of the action of drugs in poisonous doses including diagnosis and treatment,

and the handling of cases of poisoning from the medico-legal aspect. The course may be elected by all qualified students of medicine.

[99 hours.
Associate Professor SHAKLEE.
Doctor DE LA PAZ.

5. *Pharmacology and Toxicology for Pharmacy Students*.—For description of this course, see School of Pharmacy, page 204.

[Second semester; 83 hours.
Associate Professor SHAKLEE.
Doctor DE LA PAZ.

6. *Pharmacological Journal Club*.—A conference course in the study of the most important original papers on pharmacological subjects. Each student will be expected to read a limited number of current journals, and to report to the class the articles of interest, and at stated intervals to make critical reviews of assigned articles for class discussions.

[Third year, first semester; 34 hours. Association Professor SHAKLEE.

7. *Pharmacological Research*.—Opportunity to do research is open to those fitted to undertake the work. Research may be pursued in any pharmacological line, including the isolation of plant principles, physiological action of drugs, experimental therapeutics, toxicology, etc. The hours will be arranged with the instructor.

Associate Professor SHAKLEE.

PHARMACY

Instruction to medical students in materia medica and pharmacy is given in the School of Pharmacy.

8. *Materia Medica and Medical Pharmacy*.—An introductory course in materia medica and pharmacy for students of medicine. The student will study in the laboratory the tests for the most important classes of drugs and drug preparations, and will be given practice in the filling of his own prescriptions.

[Third year, first semester; 102 hours.
Assistant Professor DU MEZ.
Mr. HOCSON.

PHYSIOLOGY

ROBERT BANKS GIBSON, Ph. B., Ph. D., Associate Professor of Physiology and Chief of Department.
ISABELO CONCEPCION, M. D., Assistant in Physiology.
_____, Instructor in Physiology.

The department is fully equipped with modern apparatus for teaching and research. The subject of physiology is discussed by means of lecture-recitations. Laboratory directions are furnished by the department and students are required to submit written individual reports and records of each experiment per-

formed. For purposes of study the following textbooks are recommended: W. H. Howell, Textbook of Physiology or G. N. Stewart, A Manual of Physiology; P. B. Hawk, Practical Physiological Chemistry.

1. *General Physiology*.—Lectures and laboratory work in the physiology of the cell; of muscle and nerve; of the circulation of the blood and lymph; of respiration; of the central nervous system and special senses.

[Second year, second semester; 272 hours.

Associate Professor GIBSON.

Doctor CONCEPCION.

2. *Physiological Chemistry and the Physiology of Nutrition*.—Lectures and laboratory work in the chemistry of the proteins, and the chemistry and chemical physiology of muscle, connective and nervous tissues; of blood and of respiration; the chemistry and mechanism of secretion, digestion, and absorption; the ductless glands; the metabolism of fats, carbohydrates, and proteins; animal heat; normal and pathological urines, and the conduction of a metabolism experiment.

[Second year, second semester; 136 hours.

Associate Professor GIBSON.

(For additional instructor.)

3. *Physiology for Pharmacists*.—See page 208.

SURGERY

PHILIP KINGSNORTH GILMAN, B. A., M. D., Professor of Surgery. Chief of Department.

GEORGE GILBERT DAVIS, B. A., M. D., Associate Professor of Surgery.

POTENCIANO GUAZON, B. A., M. D., Assistant Professor of Surgery.

JOSE EDUQUE, M. D., Instructor in Surgery.

CARMELO MALABANAN REYES, M. D., Instructor in Surgery.

ANTONIO DANIEL VAZQUEZ, B. S., M. B., Instructor in Surgery.

GERVACIO SANTOS, M. D., Assistant in Surgery.

MARTIN BALTAZAR, M. D., Assistant in Surgery.

TEODORICO VALERIO, M. D., Assistant in Surgery.

The Department of Surgery offers courses of instruction in general surgery, gynecology and genito-urinary surgery, to fourth and fifth year students.

The Philippine General Hospital, the Free Dispensary, the Anatomical and Pathological Laboratories of the College of Medicine and Surgery, and the Laboratory of Experimental Medicine at Pandacan offer excellent opportunity for teaching the clinical and laboratory branches in surgery.

Surgical pathology and surgical anatomy are given in the laboratories of the Medical Building.

The course in operative surgery on the cadaver is given at the Anatomical Laboratory. The animal work is at the Laboratory

of Experimental Medicine at Pandacan where there are excellent facilities for carrying out aseptic surgery.

1. *Surgical Clinic*.—The course consists in surgical diagnosis and operative technique. The students not only view operations but are allowed to assist the surgeon.

[Fourth year, second semester; fifth year, first semester; 204 hours. Professor GILMAN.

2. *Operative Surgery*.—(2a) *Operative Surgery on the Cadaver*: The course consists in the practical demonstration of the principal classical operations.

[Fifth year, second semester; 20 hours. Associate Professor DAVIS.

(2b) *Operative Surgery on Animals*: In this course it is aimed to develop a good aseptic technique in addition to familiarity with operative procedures.

[Fifth year, second semester; 16 hours.
Associate Professor DAVIS.
Assistant Professor GUAZON.

3. *Surgical Dispensary*.—(3a) The course consists in lectures and practical work in diagnosis, minor surgery and bandaging.

[Third year, second semester; 102 hours.
Professor GILMAN.
Doctor BALTAZAR.

(3b) The course consists in more advanced work in surgical diagnosis, dressings, and surgical appliances.

[Fourth year, first semester; fifth year, second semester; 168 hours.
Associate Professor DAVIS.
Doctor VALERIO.

4. *Principles of Surgery*.—(4a) Lecture and recitation course on the principles of surgical diagnosis and treatment.

[Fifth year, second semester; 34 hours. Professor GILMAN.

(4b) Lecture and recitation course on the principles of surgical diagnosis and treatment.

[Fourth year, first semester; 34 hours. Associate Professor DAVIS.

5. *Surgical Ward Visits*.—Bedside visits on operated cases to emphasize post-operative treatment.

[Fifth year, first semester; 51 hours.
(5a) Mondays, Professor GILMAN.
(5b) Wednesdays, Doctor EDUQUE.
(5c) Fridays, Doctor REYES.

6. *Genito-Urinary Diseases*.—The course consists in lectures, demonstrations and practical work in the diagnosis and treatment of the principal genito-urinary diseases.

[Fourth year, second semester; 51 hours. Doctor EDUQUE.

7. *Minor Surgery*.—The course consists in practical work and dispensary talks in the etiology, diagnosis and treatment of minor surgical conditions.

[Third year, second semester; 51 hours. Doctor REYES.

8. *Gynecology*.—The course consists in lectures, demonstrations and practical work in the diagnosis and treatment of gynecologic conditions.

[Fourth year, second semester; 51 hours. Assistant Professor GUAZON.

9. *Fractures and Dislocations*.—The course consists in lectures, practical work and demonstrations in the diagnosis and treatment of fractures.

[Fourth year, second semester; 51 hours. Doctor VAZQUEZ.

10. *Surgical Pathology*.—In this course particular attention is given to the following out of the pathological material in connection with the clinics.

[Third year, second semester; 51 hours. Associate Professor DAVIS.

11. *Surgical Anatomy*.—This course will consist of lectures with demonstrations on the cadaver.

[Fifth year, second semester; 17 hours. Doctor REYES.

First semester.

(First year, first semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.		Histology; college.		Histology; college.		Histology; college.
8.30 to 9.30.						
9.30 to 10.30.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.
10.30 to 11.30.						
1 to 2.						
2 to 3.	Chemistry 2.	Histology; college.	Chemistry 2.	Histology; college.	Chemistry 2.	
3 to 4.						

Second semester.

(First year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.		Embryology; college.		Embryology; college.		Embryology; college.
8.30 to 9.30.						
9.30 to 10.30.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.	Anatomy 1; college.
10.30 to 11.30.						
1 to 2.						
2 to 3.	Chemistry 2.	Embryology.	Chemistry 2.	Embryology.	Chemistry 2.	
3 to 4.						

Third semester.

(Second year, first semester.)

REGULAR SECTION.

7.30 to 8.00.					
8.00 to 8.30.					
8.30 to 9.00.				Anatomy 1 (half semester), neurology (half semester); college.	
9.00 to 9.30.				Anatomy 1 (half semester), neurology (half semester); college.	Chemistry 3*.
9.30 to 10.00.					
10.00 to 10.30.					
10.30 to 11.00.					
11.00 to 11.30.					
11.30 to 12.00.					
1 to 2.					
2 to 3.				Anatomy 1 (half semester), neurology (half semester); college.	
3 to 4.					

* Students having credit in Chemistry 3 may elect other work in the University with the approval of the Dean.

Third semester—Continued.

SPECIAL SECTION.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.00.						
8.00 to 8.30.	Anatomy 1 (half semester), neurology college.		Anatomy 1 (half semester), neurology college.	Anatomy 1 (half semester), neurology college.	Anatomy 1 (half semester), neurology college.	
8.30 to 9.00.						
9.00 to 9.30.						
9.30 to 10.00.						
10.00 to 10.30.	Bacteriology 6*; college.	Chemistry 3.	Bacteriology 6*; College.			Chemistry 3.
10.30 to 11.00.						
11.00 to 11.30.				Chemistry 3.		
11.30 to 12.00.						
1 to 2.	Chemistry 2.	Anatomy 1 (half semester); neurology (half semester).	Chemistry 2.	Anatomy 1 (half semester), neurology (half semester).	Chemistry 2.	
2 to 3.						
3 to 4.						

Fourth semester.

(Second year, second semester.)

REGULAR SECTION.

7.30 to 8.30.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 2 (physiological chemistry); Gibson, college.
8.30 to 9.30.				
9.30 to 10.30.				
10.30 to 11.30.				
1 to 2.	Bacteriology; college.	Bacteriology; college.	Bacteriology; college.	Bacteriology; college.
2 to 3.				
3 to 4.				

Fourth semester—Continued.

SPECIAL SECTION.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.						
8.30 to 9.30.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.	Physiology 1; Gibson, college.
9.30 to 10.30.						
10.30 to 11.30.						
1 to 2.						
2 to 3.	Chemistry 2.	Bacteriology 6; col- lege.	Chemistry 2.	Bacteriology 6; col- lege.	Chemistry 2.	
3 to 4.						

Fifth semester.

(Third year, first semester.)

7.30 to 8.30.	Pharmacy; Du Mez and Hocson, college.	Pharmacology 1; Shaklee and De la Paz, college.	Pharmacy; Du Mez and Hocson, college.	Pharmacology 1; Shaklee and De la Paz, college.	Pharmacology 1, 2; Shaklee and De la Paz, college.	Pharmacology 3, 6; Shaklee, college.
8.30 to 9.30.						
9.30 to 10.30.	Medicine 1 (physical diagnosis); Sison, hospital.	Pharmacology 1; Shaklee and De la Paz, college.	Medicine 1 (physical diagnosis); Denny, hospital.		Medicine 1 (physical diagnosis); Gutierrez, hospital.	Medicine 1 (physical diagnosis); Sison, hospital.
10.30 to 11.30.						
1 to 2.						
2 to 3.	Pathology 2, 3; Crowell, college.	Pathology 2, 3; Crowell, college.	Pathology 2, 3; Crowell, college.	Pathology 2, 3; Crowell, college.	Pathology 2, 3; Crowell, college.	
3 to 4.						

Sixth semester.

(Third year ; second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.	Medicine 2 (clinical diagnosis); Sison-hospital.	Surgery 7 (minor surgery); Reyes, dispensary.	Medicine 2 (clinical diagnosis); Sison-hospital.	Surgery 7 (minor surgery); Reyes, dispensary.	Medicine 2 (clinical diagnosis); Gutierrez, hospital.	Surgery 7 (minor surgery); Reyes, dispensary.
8.30 to 9.30.	Medicine 1 (physical diagnosis); Denny, dispensary or hospital.	Surgery 3a (surgical dispensary); Gilman and Baltazar, dispensary.	Medicine 1 (physical diagnosis); Gutierrez, dispensary or hospital.	Surgery 3a (surgical dispensary); Gilman and Baltazar, dispensary.	Medicine 1 (physical diagnosis); Denny, dispensary or hospital.	Surgery 3a (surgical dispensary); Gilman and Baltazar, dispensary.
9.30 to 10.30.						
10.30 to 11.30.	Surgery 10 (surgical pathology); Davis, college.	Pathology 3; Crowell, college.	Surgery 10 (surgical pathology); Davis, college.	Pathology 3; Crowell, college.	Surgery 10 (surgical pathology); Davis, college.	Pathology 3; Crowell, college.
1 to 2.						
2 to 3.	Medicine 3 (clinical microscopy); Guerrero, F. G. H. laboratory.	Medicine 3 (clinical microscopy); Guerrero, F. G. H. laboratory.	Medical zoology 1 (protozoology); Walker, college.	Pathology 3; Crowell, college.	Pathology 3; Crowell, college.	
3 to 4.						

Seventh semester.

(Fourth year, first semester.)

7.30 to 8.30.	Obstetrics 1 (normal obstetrics); Roxas, college.	Medicine 10 (ward class); Gutierrez, hospital.	Obstetrics 1 (normal obstetrics); Roxas, college.	Medicine 10 (ward class); Gutierrez, hospital.	Obstetrics 1 (normal obstetrics); Roxas, college.	Medicine 10 ^a (clinical medicine); Sison, hospital.
8.30 to 9.30.	Surgery 3 ^b (surgical dispensary); Davis and Valerio, dispensary.	Pediatrics 3 (pediatrics clinic); Albert, hospital.	Surgery 3 ^b (surgical dispensary); Davis and Valerio, dispensary.	Pediatrics 2 (pediatrics clinic); Albert, hospital.	Surgery 3 ^b (surgical dispensary); Davis and Valerio, dispensary.	Pediatrics 1 (infant feeding and hygiene); Santos, hospital.
9.30 to 10.30.						
10.30 to 11.30.	Surgery 4 ^b (principles of surgery); Davis, hospital.	Medicine and pathology 12; (clinical pathologic conference); Musgrave and Crowell, college.	Surgery 4 ^b (principles of surgery); Davis, hospital.	Medicine 11 ^a (medical conference); Musgrave, hospital.		Medicine 11 ^b (medical conference); Bautista, hospital.
1 to 2.		Medical zoölogy 3 (medical entomology); Banks, college.		Medical zoölogy 3 (medical entomology); Banks, college.		
2 to 3.	Medical zoölogy 2 (helminthology); Willets, college.		Medical zoölogy 2 (helminthology); Willets, college.		Medical zoölogy 2 (helminthology); Willets, college.	
3 to 4.		Medicine 3 (clinical microscopy); Guerrero, dispensary.		Medicine 3 (clinical microscopy); Guerrero, dispensary.		

Eighth semester.

(Fourth year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.	Obstetrics 2 (operative obstetrics); Roxas, college.	Medicine 10 (ward classes); Gutierrez, hospital.	Obstetrics 2 (operative obstetrics); Roxas, college.	Medicine 10 (ward classes); Gutierrez, hospital.	Obstetrics 2 (operative obstetrics); Roxas, college.	Medicine 9 (medical research); Musgrave and Sison, hospital.
8.30 to 9.30.	Surgery 8 (gynecology); Guazon, hospital.	Pediatrics 4 (pediatric clinic and conference); Albert, hospital.	Surgery 8 (gynecology); Guazon, hospital.	Pediatrics 4 (pediatric clinic and conference); Albert, hospital.	Surgery 8 (gynecology); Guazon, hospital.	Pediatrics 4 (pediatric clinic and conference); Albert, hospital.
9.30 to 10.30.	Surgery 1 (surgical clinic); Gilman, hospital.	Medicine 8 (applied therapeutics); Bautista, hospital.	Surgery 1 (surgical clinic); Gilman, hospital.	Medicine 8 (applied therapeutics); Bautista, hospital.	Surgery 1 (surgical clinic); Gilman, hospital.	Medicine 7 (tropical medicine); Guerrero, hospital.
10.30 to 11.30.		Medicine and pathology 12 (clinical pathologic conference); Musgrave and Crowell, college.		Medicine 11a (medical conference); Musgrave and Sison, hospital.		Medicine 11b (medical conference); Bautista, hospital.
1 to 2.			Hygiene 3b (laboratory hygiene); —, college.		Hygiene 3b (laboratory hygiene); —, college.	
2 to 3.	Pathology 4 (systematic pathology); Crowell, college.	Surgery 6 (genito-urinary surgery); Eduque, hospital.		Surgery 6 (genito-urinary surgery); Eduque, hospital.		Surgery 6 (genito-urinary surgery); Eduque, hospital.
3 to 4.	Hygiene 1 (hygiene and sanitation); S. V. del Rosario, college.	Surgery 9 (fractures and dislocations); Vazquez, hospital.	Hygiene 1 (hygiene and sanitation); S. V. del Rosario, college.	Surgery 9 (fractures and dislocations); Vazquez, hospital.	Hygiene 1 (hygiene and sanitation); S. V. del Rosario, college.	Surgery 9 (fractures and dislocations); Vazquez, hospital.

Ninth semester.

(Fifth year, first semester.)

7.30 to 8.30.	Surgery 5 ^a (surgical ward visits); Gilman, hospital.	Medicine 10 (ward class); ———, hospital.	Surgery 5 ^b (surgical ward visits); Eduque, hospital.	Medicine 10 (ward class); ———, hospital.	Surgery 5 ^a (Surgical ward visits); Reyes, hospital.	Medicine 10 (clinical medicine); Sison, hospital.
8.30 to 9.30.	Surgery 1 (surgical clinic); Gilman, hospital.	Medicine 5 (nervous and mental diseases); Newberne, dispensary.	Surgery 1 (surgical ward visits); Gilman, hospital.	Medicine 5 (nervous and mental diseases); Newberne, dispensary.	Surgery 1 (surgical clinic); Gilman, hospital.	Medicine 5 (nervous and mental diseases); Newberne, dispensary.
9.30 to 10.30.		Medicine 8 (applied therapeutics); Bautista, hospital.		Medicine 8 (applied therapeutics); Bautista, hospital.		
10.30 to 11.30.		Medicine and pathology 12 (clinic pathologic conference); Musgrave and Crowel, collage.		Medicine 11 ^a (medical conference); Musgrave, hospital.		Medicine 11 ^a (medical conference); Bautista, hospital.
1 to 2.	Ophthalmology 1 (ophthalmology); Rembe and Ubaldo, hospital.	Hygiene 3 ^b (laboratory hygiene); ———, college.	Ophthalmology 1 (ophthalmology); Rembe and Ubaldo, hospital.	Hygiene 3 ^b (laboratory hygiene); ———, college.	Ophthalmology 1 (ophthalmology); Rembe and Ubaldo, hospital.	
2 to 8.	Obstetrics 3 (clinical obstetrics); Calderon, hospital.					
8 to 4.		Hygiene 2 (communicable diseases); Haster, and S. V. del Rosario, hospital.		Hygiene 2 (communicable diseases); Haster, and S. V. del Rosario, hospital.	Obstetrics 3 (clinical obstetrics); Calderon, hospital.	

Tenth semester.

(Fifth year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7.30 to 8.30.		Medicine 10 (ward class); Gutierrez, hospital.		Medicine 10 (ward class); Gutierrez, hospital.		Medicine 9 (medical research); Musgrave and Sison, hospital.
8.30 to 9.30.	Surgery 3 (surgical dispensary, 11 weeks); Davis and Valerio, dispensary.	Medicine 6 (dermatology); Gutierrez, hospital.	Surgery 3 (surgical dispensary, 11 weeks); Davis and Valerio, dispensary.	Medicine 6 (dermatology); Gutierrez, hospital.	Surgery 3 (surgical dispensary, 11 weeks); Davis and Valerio, dispensary.	
9.30 to 10.30.	Surgery 2 (operative surgery, 6 weeks); Davis and Guazon.		Surgery 2 (operative surgery, 6 weeks); Davis and Guazon.	Medicine 8 (applied therapeutics); Bautista, hospital.	Surgery 2 (operative surgery, 6 weeks); Davis and Guazon.	Medicine 7 (tropical medicine); Guerrero, hospital.
10.30 to 11.30.	Surgery 4a (principles of surgery); Gilman, hospital.	Medicine and pathology 12 (clinical-pathologic conference); Musgrave and Crowell, college.	Surgery 4a (principles of surgery); Gilman, hospital.	Medicine 11a (medical conference); Musgrave and Sison, hospital.	Surgery 11 (surgical anatomy); Reyes, college.	Medicine 11b (medical conference); Bautista, hospital.
1 to 2.	Ophthalmology 2 (diseases of the eye, ear, nose, and throat); _____, hospital.	Medicine 4 (legal medicine); _____, college.	Ophthalmology 2 (diseases of the eye, ear, nose, and throat); _____, hospital.		Ophthalmology 2 (diseases of the eye, ear, nose, and throat); _____, hospital.	
2 to 3.						
3 to 4.						

Sixth or hospital year (48 weeks optional).

[Courses arranged by the coöperation of the Director of Health. "Unit" of work, 4 weeks continuous service.]

Departments and courses.	Units.	Weeks.	Remarks.
Ambulance and receiving service.....	1	4	Intern service, Philippine General Hospital.
Medicine.....	2	8	Do.
Medicine (infectious diseases).....	1	4	Intern service in the San Lazaro Hospital for infectious diseases.
Surgery.....	2	8	Intern service, Philippine General Hospital.
Obstetrics.....	1	4	Do.
Clinical laboratory.....	1	4	Do.
Ophthalmology, otology, laryngology, and rhinology.....	1	4	Do.
Pediatrics.....	1	4	Do.
Pathology.....	1	4	Do.
Elective.....	1	4	Intern service in the Philippine General or infectious disease hospitals.
Total.....	12	48	

1. Thirty-six weeks of this service or a corresponding amount of work in the Graduate School of Tropical Medicine and Public Health is required by the various Bureaus to establish eligibility for the Government service in positions requiring the exercise of clinical knowledge.

No hospital service is required of graduates who wish to enter laboratory departments in the Government service.

2. Candidates for the degrees of Doctor of Tropical Medicine or Doctor of Public Health will be given credit for appropriate work performed in the above service.

3. Physicians who complete 6 or more units (24 or more weeks) of the above service will be given certificates showing the work performed.

No certificate will be given for less than 24 weeks' service.

4. All physicians taking this service are required to attend the weekly meetings of the staff and the clinico-pathologic conference. Those taking intern service are required to subscribe to all the hospital rules and regulations.

Students, College of Medicine and Surgery

FIFTH YEAR (9)

Arguelles, Manuel, Manila.	Gonzalez, Virgilio R., Pampanga.
Arvisu, Teodoro C., Cavite.	Luna, Miss Severina, Batangas.
Booth, James L., U. S. A.	Orosa, Sixto, Batangas.
Concha, Miss Amparo, Manila.	Villacorta, José S., Bulacan.

FOURTH YEAR (16)

Bolaños, Emilio, Z., Batangas.	Henares, Pedro, Occidental Negros.
Bringas, Eliseo, Nueva Ecija.	Jugo, Miss Isabel, Occidental Negros.
Bulatao, Emilio, Pangasinan.	Morales, Arsenio B., Nueva Ecija.
Calupitan, Manuel, Laguna.	Nañagas, Juan C., Tayabas.
Dycaico, Julian, Pampanga.	Ochoa, Enrique F., Bulacan.
Farrales, Gregorio, Manila.	Padua, Regino G., La Union.
Garcia, Faustino, Bulacan.	Ramos, José T., Nueva Ecija.
Guaño, Valentin, Nueva Ecija.	Ylagan, Mariano L., Batangas.

THIRD YEAR (5)

Baltazar, Miss Miguela, Bulacan.	Panis, Emiliano M., Manila.
Lantin, Pedro T., Batangas.	Sales, Matias N., Batangas.
Tirona, Miss Joaquina, Cavite.	

Students, College of Medicine and Surgery—Continued

SECOND YEAR (22)

Agana, Marcel S., Tarlac.	Garcia, Paciano T., Ilocos Norte.
Arnaldo, Crispulo F., Cavite.	Leiva, Lamberto, Manila.
Avial, Justo E., Cagayan, Luzon.	Montenegro, Roman B., Batangas.
Bañuelos, Trinidad, Tarlac.	Ochoa, Santiago, Tarlac.
Cosca, Severo, Cavite.	Panganiban, Benito N., Batangas.
de León, Felix, Iloilo.	Rodriguez, Pedro, Rizal.
de León, Walfrido, Laguna.	Santiago, Cristobal, Bulacan.
Deles, Crescenciano H., Iloilo.	Santos, Pedro P., Bulacan.
Esquivel, Facundo, Nueva Ecija.	Suanico, Manuel A., Occidental
Esteban, Miss Baldomera, Manila.	Negros.
Gamboa, Luis, Occidental Negros.	Vazquez, Miss Ana V., Nueva Ecija.
Garcia, Miss Macaria, Pampanga.	

FIRST YEAR (39)

Abuel, José, Tayabas.	Lopez, José Q., Nueva Ecija.
Andaya, José, Capiz.	Lopez, Luciano, Tayabas.
Cabreza, Juan, Laguna.	Lualhati, Genaro, Tayabas.
Caedo, José, Batangas.	Marella, Mariano, Batangas.
Cuajunco, Fidel, Cavite.	Navarro, Andres F., Albay.
Damian, Luis, Rizal.	Nicolas, Miss Felisa, Cavite.
del Villar, Pablo E., Ambos Cama-	Pascual, Anicio P., Pampanga.
rines.	Quiambao, Silvino C., Pampanga.
Doeia, Mariano M., Laguna.	Rillo, Sancho, Cavite.
Enriquez, Celso, Tayabas.	Santos, Francisco, Bulacan.
Estrada, Januario, Zamboanga.	Serafica, Hermenegildo, Pangasinan.
Fernandez, Zosimo, Laguna.	Tupas, Alberto, Iloilo.
Franco, Cecilio D., Pampanga.	Varela, José, Occidental Negros.
Gemil, Miss Miguela, Laguna.	Victoriano, Nicanor, Cavite.
Go Kee, Francisco, Amoy (China).	Villanueva, José, Iloilo.
Guevara, Romulo, Rizal.	Villegas, Miss Anastacia, Pam-
Gustillo, Jesús J., Iloilo.	panga.
Horillano, Miss Fé, Iloilo.	Vitug, Wenceslao, Pampanga.
Jugueta, Dalmacio A., Tayabas.	Ylanan, Regino, Cebu.
Katigbak, José M., Batangas.	Zafra, Miss Dolores,
Ledesma, Daniel, Iloilo.	

SPECIAL STUDENTS (3)

(Undergraduate)

Barnes, W. H., Michigan, U. S. A.	Marquez, Hilario G., Tarlac.
Cain, Mrs. Nannie, B. A., (Baylor	
College) 1898, Texas, U. S. A.	

*Former graduates***1909**

1. Jose Eduque.....	Doctor of Medicine.
2. Isabelo Katigbak.....	Doctor of Medicine.
3. Leoncio Lopez.....	Doctor of Medicine.
4. Vicente E. Manapat.....	Doctor of Medicine.
5. Ramon Ongsiaco.....	Doctor of Medicine.
6. Lorenzo Ordoñez.....	Doctor of Medicine.
7. Pacifico Panlilio.....	Doctor of Medicine.
8. Vicente Rivera.....	Doctor of Medicine.

1910

1. Joaquin Banzon.....	Doctor of Medicine.
2. Melecio Castro.....	Doctor of Medicine.
3. Jose Elchico.....	Doctor of Medicine.
4. Jose Garcia.....	Doctor of Medicine.
5. Ricardo Leynes.....	Doctor of Medicine.
6. Rosendo R. Llamas.....	Doctor of Medicine.
7. Miguel Lukban.....	Doctor of Medicine.
8. Cayo Marfori.....	Doctor of Medicine.
9. Alfonso Raquel.....	Doctor of Medicine.
10. Ruperto Roque.....	Doctor of Medicine.
11. Victor Sevilla.....	Doctor of Medicine.
12. Augusto Villalon.....	Doctor of Medicine.

1911

1. Jose Alvares.....	Doctor of Medicine.
2. Maximo Borromeo.....	Doctor of Medicine.
3. Jose S. Hilario.....	Doctor of Medicine.

1912

1. Felipe Almeda.....	Doctor of Medicine.
2. Martin Baltazar.....	Doctor of Medicine.
3. Isabelo Concepción.....	Doctor of Medicine.
4. José P. Manalang.....	Doctor of Medicine.
5. Maria Paz Mendoza.....	Doctor of Medicine.
6. Gonzalo Montemayor.....	Doctor of Medicine.
7. Manuel Ramirez.....	Doctor of Medicine.
8. Rafael M. Santos.....	Doctor of Medicine.
9. Pio Valencia.....	Doctor of Medicine.

Graduates of 1913

Domingo, Elias, Sorsogon.	Lejano, Artemio, Batangas.
Elizalde, Primitivo, Pampanga.	Luna, Victoriano, Batangas.
Eustaquio, Isaac, Rizal.	Valeriom, Teodorico V., Tayabas.
Feliciano, Hilarion T., Pampanga.	Velarde, Herminio E., Nueva Ecija.

GRADUATE SCHOOL OF TROPICAL MEDICINE
AND PUBLIC HEALTH

Officers of Administration

MURRAY BARTLETT,
President of the University.

WILLIAM EVERETT MUSGRAVE,
Dean, College of Medicine and Surgery.

COMMITTEE

DEAN MUSGRAVE, Chairman.

Professor HEISER.

Professor CROWELL.

Professor CALDERON.

Professor ALBERT.

Associate Professor WALKER.

OFFICERS OF INSTRUCTION

(See Officers of Instruction of the College.)

GRADUATE SCHOOL OF TROPICAL MEDICINE AND PUBLIC HEALTH

INTRODUCTION

The enormous wealth of clinical material and the very satisfactory facilities for the care of the sick that are found in the city of Manila, together with the excellent advantages furnished for both laboratory and clinical instruction, afford unusual opportunities to the student of tropical medicine and public health.

Upon recommendation of the Faculty of the College of Medicine and Surgery, approved by the President of the University, the Board of Regents has authorized graduate courses leading, by a year's course, to the degree of Doctor of Tropical Medicine, and by a two years course to the degree of Doctor of Public Health.

The close coöperation between the University of the Philippines, the Bureau of Health, including the Philippine General Hospital and other large hospitals of the city of Manila, and the Bureau of Science with its large staff of research workers, makes it possible to offer courses in graduate work under conditions hardly excelled elsewhere. The Philippine General Hospital, for instance, including its free dispensary department, cares for some six or seven hundred sick people a day, while the hospital for infectious diseases, with a capacity of 250 beds, furnishes additional valuable material. In addition, the system of Government dispensaries established throughout the Philippine Islands serves as a constant source of supply to the Manila hospitals which are thus furnished with a much larger variety of patients than otherwise could be obtained. The patients are drawn from every part of the Philippine Archipelago, and in addition many of them come from other neighboring tropical countries. The monthly morbidity reports from the Philippine General Hospital are indices to the principal diseases found in the Tropics, and the command over pathological material is more complete than is found in most countries. Such unusual clinical opportunities are also coördinated with those of the pathological departments of the University of the Philippines and of the biological laboratories of the Bureau of Science.

Sanitary organization and its practical application has reached as high a degree of development in the Philippine Islands as anywhere else in the world. The success which has attended the application of hygienic and sanitary measures has fully justified the plans under which it was achieved, and the laws by which it was brought about are, therefore, of great interest. The sanitary code for the city of Manila is one of the few ordinances in existence which covers the whole field of municipal hygiene and sanitation. The course in public health will offer innumerable opportunities to observe the actual workings of this law.

On account of Manila's close proximity to the great infected centers of the Orient, there are unexcelled opportunities for studying maritime quarantine methods and witnessing their application. The large Mariveles quarantine station has treated more infected vessels in recent years than any other similar station in the world. The questions concerning better water supply for the tropics, with a view to their solution, have received a vast amount of attention, and extensive laboratory studies are constantly in progress. On account of the rapid development of the Islands occasions are constantly afforded for observing the installation of the different kinds of water systems and noting their effect upon public health.

There is ample opportunity to become familiar with the laboratory examinations connected with the analysis of foods and drugs, in connection with the enforcement of the Food and Drug Act. The new developments in public health work are constantly being applied in the Philippines on a large scale, so that the testing of the new theories of sanitary science by practical application may be constantly witnessed and their value determined.

From the foregoing it is evident that the graduate course outlined offers opportunities of the very highest order which should demand interest and secure students from universities not so fortunately situated.

ADMISSION REQUIREMENTS

The course is open to any graduate of the College of Medicine and Surgery, University of the Philippines, or from other schools, granting a degree of Doctor of Medicine or its equivalent, which are recognized by the authorities of the University of the Philippines.

REGISTRATION

The courses of instruction are given throughout the year and candidates for degrees may register at any time.

EXAMINATIONS

Examinations will be held upon the completion of each subject, and at such other times as the teacher in charge of a course may elect. In order to be graduated, a student must have passed all subjects required in the course and his graduation must then be recommended by the University Council and approved by the Board of Regents.

SPECIAL STUDENTS

Physicians desiring to take any of the special courses outlined in this announcement, may be admitted upon vote of the faculty of the College of Medicine and Surgery. Such courses do not lead to a degree.

FEEES

A laboratory fee of ₱10 for each subject for each semester will be charged all students in laboratory courses. Residents of the Philippine Islands are not required to pay a fee for instruction, but all other students shall pay a fee of ₱250 for each year's course of instruction.

Special students shall pay a fee of ₱50 per month in addition to the usual laboratory fees.

DEGREES

Students who complete one year's work of the prescribed courses, pass all required examinations, and submit a satisfactory thesis, will be granted the degree of Doctor of Tropical Medicine (D. T. M.).

Students who complete the full two years' course of study, pass all examinations and submit a satisfactory thesis on some research subject will be granted the degree of Doctor of Public Health (D. P. H.).

CURRICULUM

GRADUATE SCHOOL OF TROPICAL MEDICINE AND PUBLIC HEALTH

The curriculum is divided into departments of instruction, corresponding in organization and personnel to the organization of the undergraduate school.

The extensive outline and thorough courses of instruction given in this school are made possible by coöperation of the Director of Health and the Director of the Bureau of Science,

with the approval of the Honorable Winfred Denison, Secretary of the Interior and chairman of the committee on the College of Medicine and Surgery of the Board of Regents of the University.

COURSES OF INSTRUCTION

PATHOLOGY

The courses in the Department of Pathology consist in lectures and practical work.

Courses 7, 8, 9, 10 are required for candidates for the degree of Doctor of Tropical Medicine and are elective for special students. Courses 7, 8, 9, 10, 11 are required for candidates for the degree of Doctor of Public Health.

7. *Lecture Course in Tropical Pathology*.—Five lectures in the problems of tropical pathology. In this course of lectures the most important problems of current interest are discussed with particular reference to the state of our present knowledge and the indications of lines of research.

[15 hours. Associate Professor CROWELL.

8. *Practical Work in Tropical Pathology*.—This course includes practical work in the laboratories of pathology including autopsies in the city morgue and the morgue of the infectious disease hospital. Special attention will be given to the pathology of infectious diseases. Four hours daily for twelve weeks.

[288 hours. Associate Professor CROWELL.

9. *Lectures in Tropical Bacteriology*.—This course consists in five lectures on the problems of tropical bacteriology, with particular reference to the tropical bacteriological flora, and the bacteriology of tropical infectious diseases.

10. *Practical Tropical Bacteriology*.—The course consists in practical work in bacteriology in the laboratories of the Department of Pathology and the Bureau of Science. Three hours daily for twelve weeks.

[216 hours. Assistant Professor HAMMACK.

11. *Immunity*.—A combined lecture and laboratory course in immunity, including the manufacture and uses of the various sera, antitoxins and vaccines. This course is given in the Division of Serology, Bureau of Science. Four hours daily for twelve weeks.

[288 hours. Doctor RÜDIGER.

MEDICAL ZOÖLOGY

The work in this department consists of combined lectures and laboratory courses as follows:

5. *Medical Zoölogy*.—Combined lecture course and practical

work in the identification and pathogenesis of venomous pisces, reptilia coelenterata, lacentilia, amphibia, and mammalia, from 2 to 4 p. m. daily for four weeks.

[48 hours. Assistant Professor WILLETS.

6. *Advanced Course in Protozoölogy*.—The course is required of candidates for the degrees of Doctor of Tropical Medicine and Doctor of Public Health. Elective for special students.

The course consists in laboratory work, prescribed reading, and conferences. It deals intensively with the important groups of the parasitic protozoa. The student is introduced to the important literature on the protozoa. Training is given in protozoölogical technique and methods of research. It must be preceded by Course 1 or its equivalent.

[102 hours. Associate Professor WALKER.

[NOTE.—The study of annulata and arthropoda of importance in tropical medicine is included in the course in medical entomology.]

7. *Research Course in Protozoölogy*.—An elective course for graduate students who may be particularly interested in tropical medicine and who desire to specialize in protozoölogy. It must be preceded by Courses 1 and 2 or their equivalents.

[Associate Professor WALKER.

8. *Advanced Course in Helminthology*.—Required of candidates for the degrees of Doctor of Tropical Medicine and Doctor of Public Health. Elective for special students. This course continues the work of Course 4, developing it to a greater degree than possible in an elementary course. It deals chiefly with the collection, preservation, staining, mounting, and identification of parasitic worms. It must be preceded by Course 4 or its equivalent.

[102 hours. Assistant Professor WILLETS.

9. *Research in Helminthology*.—An elective course for graduate students who wish to specialize in helminthology. It must be preceded by Courses 4 and 5 or their equivalents.

[Assistant Professor WILLETS.

10. *Advanced Course in Medical Entomology*.—Required of candidates for the degrees of Doctor of Tropical Medicine and Doctor of Public Health. Elective for special students.

[102 hours. Mr. BANKS.

11. *Research in Medical Entomology*.—An elective course for graduate students who wish to specialize in entomology.

[Mr. BANKS.

HYGIENE AND PUBLIC HEALTH

The courses given in this department consist in lectures, practical laboratory work, and public health station work. A limited number of students will be given hospital intern service while gaining experience in the "clinical" subjects of the course.

4. *The Care of the Aged and Infirm, Mentally Deficient and other "Children of the State."*—Ten lectures. The course consists in a general discussion of this important problem from a public health standpoint, with special reference to the tropical aspects of the subject.

[10 hours. Doctor VICENTE DE JESUS.

5. *Quarantine.*—The course consists in lectures and practical work in quarantine, two hours daily for four weeks. Particular attention will be paid to special problems of maritime quarantine in the tropics. This course may be supplemented by Hygiene 22, an elective course, giving a wider range and more practical experience.

[48 hours. Doctor H. I. SMITH.

6. *Social Diseases.*—Five lectures. The course consists in an outline discussion of the social evil from a public health standpoint and with particular reference to conditions as they exist in the tropics.

[Doctor ALFRED GARTEN.

7. *Tuberculosis.*—Five lectures. The subject is dealt with from the standpoint of the public-health official.

[5 hours. Doctor VICENTE DE JESUS.

8. *Infant Mortality.*—Five lectures. The course consists in a general outline of the causes and remedies for infant mortality, special attention being given to the phases of the subject peculiar to the tropics.

[5 hours. Doctor GABRIEL.

9. *Disinfection and Disinfectants.*—A combined lecture, laboratory, and practical course. Two hours daily for four weeks. In this course particular attention is given to the indications for special disinfectants and the influence of special environment upon the action of different disinfectants.

[48 hours. Doctor SCHÖBL (Bureau of Science).

10. *Laboratory Hygiene.*—The course is given in two sections, chemical and biological.

10a. *Chemical Course.*—The course consists in lectures and laboratory work dealing with the subject of the examination of food and drugs, air, water, and toxicological examinations.

Course given by the Division of Chemistry, Bureau of Science, 3 hours daily for 4 weeks.

10b. *Biological Course*.—This course consists in lectures and laboratory work in the examination of milk, water, foods, and the various diagnostic methods connected with public health work. Course given in the Laboratory of Hygiene, three hours daily for four weeks.

[72 hours.
Associate Professor GIBBS.
Mr. AGCAOILI.

11. *Hospital Construction and Management*.—The course includes practical instruction in the construction and management of hospitals, including property accountability and accounting.

[— — —]

12. *Military Hygiene*.—Ten lectures on military hygiene in the Tropics.

[10 hours. Doctor S. C. GURNEY.

13. *Prison Sanitation*.—The course consists in ten lectures on Prison Sanitation and Prison Hospital Administration in the Tropics. The valuable experiences of sanitation in Bilibid Prison will be used in these lectures. The course may be supplemented by Hygiene 24 which gives a larger practical experience in prison hospital work.

[10 hours. Doctor J. W. SMITH.

14. *Health Problems in the Tropics*.—The course consists in ten lectures on the principal problems connected with public health work in the Tropics.

[10 hours. Professor HEISER.

15. *Sanitary Hygiene*.—A combined lecture and practical course in Sanitary Engineering in the Tropics, including building construction, rat proofing, plumbing, and disposal of sewage and wastes. Four hours daily for eight weeks.

[144 hours. Mr. GEORGE H. GUERDRUM.

16. *Sanitary Office Administration*.—A combined lecture and practical course including the study of records, indexes, filing official correspondence, etc.; three hours daily for four weeks.

[72 hours. Mr. DANIEL WEBSTER EGNER, chief, clerical division, Bureau of Health.

17. *Social and Vital Statistics*.—Combined lecture and practical course on the legal phases and methods of preparing social and vital statistics, three hours daily for four weeks. The course is given in the Vital Statistics Division, Bureau of Health.

[72 hours.

Doctor MANUEL GOMEZ.
Mr. JUAN AUSTIN, statistician, Bureau of Health.

18. *Disposal of the Dead*.—A combined lecture and practical course upon the inspection and care of cemeteries, cremation, burial and embalming, one hour daily for four weeks.

[24 hours. Doctor A. P. GOFF.

19. *Health Station Work*.—The course includes inspection and management of pumping stations, slaughterhouses, control of meat, milk and water supply, inspection of markets, laundries, barber shops, public institutions and public conveyances; three hours daily for twenty-four weeks.

[432 hours. Assistant Professor ROSARIO.

20. *Legal Medicine*.—The course consists in lectures dealing particularly with the legal phases of medicine in the Philippine Islands and special attention will be given to consideration of pure food and drug laws and their enforcement.

[15 hours. Doctor NEWBERNE.

21. *Social Service*.—Elective lecture course.

[5 hours. Professor MUSGRAVE.

22. *Quarantine*.—Elective course of practical instruction in quarantine methods. The student will have practical work in boarding and inspection of vessels and practical experience at the Mariveles quarantine station.

23. *Military Hygiene*.—By special arrangements, a limited number of students may be given the regular three months' course in the Constabulary School at Baguio. The work is elective and under the direction of Colonel Gurney, chief medical officer of the Constabulary.

24. *Prison Sanitation and Prison Hospital Administration*.—An elective course of practical work in Bilibid Prison Hospital with intern or extern service may be arranged for a limited number of students. The course is under the direction of Dr. J. W. Smith, chief medical officer of the prison.

MEDICINE

The course given in the department of medicine consists of lectures and practical instruction in the wards of the Philippine General Hospital and the Hospital for Infectious Diseases, and the free dispensary. A limited number of students may serve as interns in the hospitals during their period of instruction and all clinics are open to the students of the School at all times.

13. *Medical Botany*.—Combined lecture course and practical work in the identification and pathogenesis of bryophyta, pteri-

dophyta, phanerogams, and other vegetable substances which are pathogenic for man.

[12 hours. Associate Professor MERRILL.

[NOTE.—The study of the pathological fungi is included in the course in Bacteriology.]

14. *Pathogenesis of Physical Agents*.—Five lectures on the physical agents pathogenic for man with particular reference to the influence of tropical environment, the actinic rays of the sun, and other physical agents.

[5 hours. Doctor BUTLER, U. S. Navy.

15. *Communicable Diseases*.—Ten lectures on the study of the most important communicable diseases of man in the tropics.

[10 hours. Associate Professor GUERRERO.

16. *Medical Economics and Ethics*.—Five lectures.

[5 hours. Doctor S. C. GURNEY.

17. *Medical Clinics*.—Clinics are conducted in the medical wards of the hospitals throughout the year as follows:

(a) Mondays, Wednesdays, and Fridays at 2 p. m.

Professor MUSGRAVE.

(b) Mondays, Wednesdays, and Fridays at 11.30 a. m.

Professor BAUTISTA.

Assistant Professor SISON.

(c) Tuesdays, Thursdays, and Saturdays at 10.30 a. m.

Associate Professor GUERRERO.

(d) Tuesdays, Thursdays, and Saturdays at 2 p. m. at the Hospital for Infectious Diseases.

Doctor T. J. JACKSON.

Candidates for the degree of Tropical Medicine are required to attend these clinics for three months.

18. *Clinical Microscopy*.—A combined lecture and practical course in the clinical laboratories of the college and hospital. Practical work is given in the routine examination of feces, urine, blood and other secretions and excretions, including Wassermann reaction and all other work usually performed in clinical diagnostic laboratories. Three hours daily for six weeks.

[108 hours. Assistant Professor WILLETS.

19. *Tropical Therapeutics*.—Lecture course on the therapeutics of important tropical diseases and upon special therapeutic indications peculiar to the tropics. The course will include practical application of remedies to disease in wards of the hospitals.

[10 hours. Professor BAUTISTA.

20. *Tropical Etiology*.—An outline lecture course on the principal etiological agents of disease in the tropics.

[5 hours. Professor MUSGRAVE.

21. *Library Methods*.—A combined lecture and practical course in scientific library methods, including instruction in bibliographic work.

[10 hours. Miss MARY POLK, Librarian, Bureau of Science.

22. *Life Insurance Medicine*.—A lecture and practical demonstration course in examinations for life insurance.

[5 hours. ———.

23. *Research Medicine*.—Elective course. Selected students will be given opportunities and facilities for carrying on approved research in problems in medicine. Subjects will be selected and the work supervised and counsel given to the worker.

Professor MUSGRAVE.

SURGERY

The courses given in this department consist in lectures, clinics, operative surgery on the cadaver, animal surgery, and surgical pathology. A limited number of students may have intern service in hospitals during their course and all hospitals and free dispensary clinics are open to students of the schools.

15. *Surgical Problems in the Tropics*.—A lecture course on the principal surgical conditions peculiar to warm countries.

[5 hours. Professor GILMAN.

16. *Tropical Surgical Pathology*.—A combined lecture and practical course on the most important and peculiarly tropical problems in surgical pathology.

[5 hours. Associate Professor DAVIS.

17. *Surgical Technique in the Tropics (elective)*.—A lecture course on the problems of asepsis, operating technique, and after treatment of operative surgery.

[5 hours. Assistant Professor GUAZON.

18. *Surgical Clinics*.—Clinics are conducted in the operating pavilions and surgical wards of the hospital throughout the year as follows:

(a) On Mondays, Wednesdays, and Fridays at 8.30 a. m., operative surgery and surgical ward visits.

Professor GILMAN.

(b) On Tuesdays and Thursdays at 8.30 a. m., operative surgery and surgical ward visits.

Associate Professor DAVIS.

(c) On Saturdays at 8.30 a. m., surgery and surgical ward visits.

Assistant Professor GUAZON.

19. *Operative Surgery on the Cadaver*.—An elective practical course in operative surgery.

Associate Professor DAVIS.

20. *Animal Surgery*.—An elective course of animal surgery conducted at the animal hospital in Pandacan.

Assistant Professor GUAZON.

21. *Research Surgery*.—Advanced students desiring special research work in the problems of surgery will be given proper facilities for work and assistance, supervision, and advice.

OBSTETRICS

The courses given in this department consist in lectures, clinics, operative obstetrics, and ward visits in the obstetrical wards of the hospital. The department operates a large out-patient service and students may have as much experience as they desire. A certain number of students will be given hospital intern service during their course.

5. *Obstetrical Problems in the Tropics*.—A lecture course covering the most important problems in tropical obstetrics, particularly among native inhabitants of the country.

[5 hours. Professor CALDERON.

6. *Obstetrical Clinics*.—Clinics and ward visits in the wards of the hospital and clinics in the out-patient service continue throughout the year as follows:

(a) Daily at 10.30 a. m. in the maternity wards of the hospital.

Professor CALDERON.

(b) On Mondays, Wednesdays, and Fridays at 7.30 a. m., in the maternity wards of the hospital.

Associate Professor ROXAS.

(c) *Out-patient Clinic*.—Calls for service in the out-patient department are being received at all hours and the student has ample practical experience under the trying conditions usually encountered in such service. The clinics in this service are under the direction of

Associate Professor ROXAS.
Doctor ACOSTA-SISON.
Doctor TOLENTINO.

7. *Research Obstetrics*.—Opportunities for advanced work and research in obstetrics are excellent and the unsolved prob-

lems numerous. Students will be given facilities and encouraged to take up the investigations of problems, and every facility at the command of the department will be placed at the disposition of serious students.

OPHTHALMOLOGY, OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY

The courses given to graduates in this department consist in lectures, clinics and practical work in the wards of the hospital and free dispensary. A limited number of students will be given intern service in the hospital during the period of instruction.

6. *Problems in Diseases of the Eye, Ear, Nose, and Throat in the Tropics*.—A lecture course in which tropical peculiarities and special diseases are discussed.

[5 hours. Professor REMBE.

7. *Refraction*.—A practical course in the art of refraction.

[24 hours. Doctor UBALDO.

8. *Clinics*.—Clinics are held in the wards, operating rooms, office, and free dispensary as follows:

(a) *Operative clinics*: On Tuesdays and Saturdays at 2 p. m. in the special operating pavilion of the hospital.

Professor REMBE.

(b) *Office clinics*: Daily at 10.30 a. m.

Professor REMBE.

(c) *Dispensary clinics*: Daily 7.30 to 11.30 a. m. in the free dispensary.

Doctor UBALDO.
Doctor VELARDE.

9. *Research*.—The department contains a wealth of material which should be investigated and facilities for work will be given serious students.

PEDIATRICS

The subject of pediatrics is considered to be one of the most important in tropical medicine. The courses given to graduates in this department consist in lectures, clinics and practical work in the wards and free dispensary of the hospital and social service with the "Liga Nacional." A limited number of students will be given hospital intern service during their course.

3. *Pediatric Problems in the Tropics*.—A lecture course covering the most important questions concerning diseases of children in the tropics.

[5 hours. Professor ALBERT.

4. *Infant Feeding*.—A combined practical and lecture course on the feeding of infants.

[5 hours. Doctor RAFAEL SANTOS.

5. *Pediatric Clinics*.—Daily in the wards of the hospital at 9.30 a. m.

Professor ALBERT.

6. *Research in Pediatrics*.—There are exceptional opportunities for investigation in diseases of children in the department's service and students will be given every opportunity to carry on serious work.

ANATOMY, PHYSIOLOGY, AND PHARMACOLOGY

Students may elect advanced courses in these departments. Special students for advanced work and research are received at any time.

Graduate School of Tropical Medicine and Public Health

SCHEDULE OF COURSES

[The figures represent hours of required work for the degree mentioned and the (*) represents elective courses.]

Department and courses.	D. T. M.	D. P. H.	Remarks.
<i>Hygiene and public health.</i>	<i>Hours.</i>	<i>Hours.</i>	
4	(*)	10	Lecture course, care of "Children of the State."
5	48	48	Combined lecture and practical course in quarantine methods.
6	(*)	5	Lecture course in "Social diseases and the "social evil."
7	(*)	5	Lecture course on tuberculosis.
8	(*)	5	Lecture course on infant mortality.
9	(*)	48	Combined lecture and laboratory course on disinfectants and disinfection.
10	(*)	(*)	Laboratory hygiene.
10a	(*)	72	Chemical courses: Combined lecture and laboratory course in chemical examination of food and drugs, air, water, etc.
10b	(*)	72	Bacteriologic course: Combined lecture and laboratory course in bacteriological examination of food and drugs, air, water, etc.
11	(*)	(*)	Elective course in hospital construction and management.
12	(*)	10	Lecture course on military hygiene in the Tropics.
13	(*)	5	Lecture course on prison sanitation in the Tropics.
14	10	10	Lecture course on public health problems in the Tropics.

Graduate School of Tropical Medicine and Public Health—Continued

SCHEDULE OF COURSES—Continued

Department and courses.	D. T. M.	D. P. H.	Remarks.
<i>Hygiene and public health—Continued.</i>	<i>Hours.</i>	<i>Hours.</i>	
15	(*)	144	Combined lecture and practical course in sanitary engineering and sanitary hygiene in the Tropics.
16	(*)	48	Combined lecture and practical course in public health records and systems.
17	(*)	48	Practical course in social and vital statistics.
18	(*)	10	Combined lecture and practical course on disposal of the dead.
19	(*)	432	Practical course in public health station work.
20	(*)	15	Lecture course on legal medicine including pure food and drug legislation.
21	(*)	(*)	Elective lecture course on social service.
22	(*)	(*)	Elective practical quarantine course including practical work at Mariveles and in boarding and inspection of vessels.
23	(*)	(*)	Elective special course in military hygiene.
24	(*)	(*)	Elective practical course in prison sanitation.
<i>Medical zoölogy.</i>			
5	102	102	Combined laboratory and lecture course: Protozoölogy.
6	48	48	Combined lecture and practical course: General medical zoölogy.
7	(*)	(*)	Elective research course in protozoölogy.
8	102	102	Advanced course in helminthology.
9	(*)	(*)	Elective research course in helminthology.
10	102	102	Advanced course in medical entomology.
11	(*)	(*)	Elective research course in medical entomology.
<i>Medicine.</i>			
13	12	(*)	Combined lecture and practical course in the identification of poisonous vegetable substances.
14	5	(*)	Lecture course on the pathogenesis of physical agents.
15	10	10	Lecture course on the most important communicable diseases.
16	(*)	5	Lecture course, medical economics and ethics (elective).
17			Medical clinics.
17a.....	36	(*)	Medical clinic; Professor Musgrave.
17b.....	36	(*)	Medical clinic; Professor Bautista and Assistant Professor Sison.
17c.....	36	(*)	Medical Clinic; Associate Professor Guerrero.
17d.....	36	36	Clinic in infectious and contagious diseases at San Lazaro Hospital.
18	(*)	(*)	Practical course in clinical microscopy.
19	5	(*)	Lecture course on tropical therapeutics.
20	5	5	Lecture course on tropical etiology.
21	(*)	(*)	Practical course in scientific library methods and bibliography (elective).

Graduate School of Tropical Medicine and Public Health—Continued

SCHEDULE OF COURSES—Continued

Department and courses.	D. T. M.	D. P. H.	Remarks.
<i>Medicine—Continued.</i>	<i>Hours.</i>	<i>Hours.</i>	
22 -----	(*)	(*)	Elective lecture course in life insurance medicine.
23 -----	(*)	(*)	Elective course in research medicine.
<i>Obstetrics.</i>			
5 -----	5	(*)	Lecture course on the obstetrical problems of the Tropics.
6 -----	(*)	(*)	Obstetrical clinics and ward visits.
6a -----	(*)	(*)	Professor Calderon's daily clinic (elective).
6b -----	(*)	(*)	Associate Professor Roxas' clinic on ——— (elective).
6c -----	(*)	(*)	Out-patient clinics daily; Associate Professor Roxas, Doctors Acosta-Sison and Tolentino (elective).
7 -----	(*)	(*)	Research obstetrics (elective).
<i>Ophthalmology, laryngology, rhinology and otology.</i>			
6 -----	(*)	(*)	Lecture course in problems of the specialties (elective).
7 -----	(*)	(*)	A practical course in refraction (elective).
8 -----	(*)	(*)	Clinics (elective).
8a -----	(*)	(*)	Operative clinic; Professor Rembe (elective).
8b -----	(*)	(*)	Office clinics; Professor Rembe (elective).
8c -----	(*)	(*)	Dispensary clinics; Doctors Ubaldo and Velarde (elective).
9 -----	(*)	(*)	Research.
<i>Pathology.</i>			
7 -----	5	5	Lecture course: Pathology.
8 -----	288	288	Laboratory course; Pathology.
9 -----	5	5	Laboratory course; Bacteriology.
10 -----	216	216	Laboratory course; Bacteriology.
11 -----	(*)	288	Laboratory and practical course; Immunity.
<i>Pediatrics.</i>			
3 -----	5	(*)	Lecture course on pediatric problems in the Tropics.
4 -----	5	(*)	Lectures and practical work in infant feeding.
5 -----	(*)	(*)	Pediatric clinics, daily; Professor Albert (elective).
6 -----	(*)	(*)	Research pediatrics (elective).
<i>Surgery.</i>			
15 -----	5	(*)	Lecture courses in the problems of tropical surgery.
16 -----	5	(*)	Combined lecture and practical course in surgical pathology.
17 -----	(*)	(*)	An elective lecture course on surgical technique in the Tropics.
18 -----	(*)	(*)	Surgical clinics.
18a -----	(*)	(*)	Professor Gilman's clinic in operative surgery and ward visits throughout the year (elective).

Graduate School of Tropical Medicine and Public Health—Continued

SCHEDULE OF COURSES—Continued

Department and courses.	D. T. M.	D. P. H.	Remarks.
<i>Surgery</i> —Continued.	<i>Hours.</i>	<i>Hours.</i>	
18b.....	(*)	(*)	Associate Professor Davis' clinic in operative surgery and ward visits throughout the year (elective).
18c.....	(*)	(*)	Assistant Professor Guazon's clinic in operative surgery and ward visits throughout the year (elective).
19.....	(*)	(*)	Practical course in operative surgery on the cadaver (elective).
20.....	(*)	(*)	Practical course in animal surgery (elective).
21.....	(*)	(*)	Research surgery (elective).

1. In addition to the work outlined above, candidates for degrees are required to submit a thesis satisfactory to the committee on the graduate school.

2. Credit may be given for work performed during the sixth or hospital year as outlined above, or for other hospital intern service at the discretion of the committee on graduate school.

SCHEDULE OF LECTURE COURSES

The following outline of the lecture courses of the Graduate School is announced for the year 1914-15.

Attendance at these lectures is required of all physicians who are candidates for the degree of Doctor of Public Health, and those lectures marked (*) are required for candidates for the degree of Doctor of Tropical Medicine.

All special students in the Graduate School, when not serving on some special detail necessitating their absence, are required to attend these lectures.

All interns in the Philippine General Hospital, when not serving on some special detail necessitating their absence, are required to attend these lectures.

All members of the faculty of the College of Medicine and all members of the staff of the hospital are invited to attend the lectures.

All members of the faculty of the Philippine Training School for Nurses and all graduate nurses on duty in the hospital are invited to attend such of the lectures as they may desire.

Except where otherwise specified the lectures will be given in the lecture room at the hospital on Mondays, Tuesdays, Wednesdays, and Saturdays at 5 p. m.

DEPARTMENT OF HYGIENE AND PUBLIC HEALTH

Hygiene and Public Health 4.—Care of "Children of the State;" 10 lectures by Dr. de Jesus, Assistant Director of Health; Mondays, May 4, 11, 18, 25; June 1, 8, 15, 22, 29; and July 6.

Hygiene and Public Health 6.—Social diseases and the social evil; 5 lectures by Dr. Walter K. Beatty; Tuesdays, May 5, 12, 19, 26 and June 2.

Hygiene and Public Health 7.—Tuberculosis; 5 lectures by Dr. Vicente de Jesus; Mondays, July 13, 20, 27 and August 3 and 10.

Hygiene and Public Health 8.—Infant mortality; 5 lectures by Dr. Proceso Gabriel; Mondays, August 17, 24, 31 and September 7 and 14.

Hygiene and Public Health 12.—Military hygiene in the Tropics; 10 lectures by Dr. Samuel C. Gurney; Mondays, September 21, 28; October 5, 12, 19, 26; and November 2, 9, 16, 23.

Hygiene and Public Health 13.—Prison sanitation; 5 lectures by Dr. J. W. Smith; Mondays, November 30 and December 7, 14, 21, 28.

Hygiene and Public Health 14.—Public-health problems in the Tropics; 10 lectures by Dr. Victor G. Heiser; Wednesdays, May 6, 13, 20, 27; June 3, 10, 17, 24; and July 1, 8.

Hygiene and Public Health 20.—Legal medicine and pure food and drug laws; 15 lectures, by Dr. R. E. L. Newberne; Wednesdays, September 23, 30; October 7, 14, 21, 28; November 4, 11, 18, 25; and December 2, 9, 16, 23.

Hygiene and Public Health 21.—Social service; 5 lectures by Dr. W. E. Musgrave; Wednesdays, July 15, 22, 29 and August 5, 12.

DEPARTMENT OF MEDICINE

*Medicine 13.**—Medical botany; 12 lectures by Dr. Elmer D. Merrill; Tuesdays, July 14, 21, 28; August 4, 11, 18, 25; and September 1, 8, 15, 22, 29.

*Medicine 14.**—Pathogenesis of physical agents; 5 lectures by Dr. Butler, U. S. Navy; Tuesdays, June 9, 16, 23, 30 and July 7.

*Medicine 15.**—Communicable diseases; 10 lectures by Dr. Luis Guerrero; Tuesdays, October 5, 12, 19, 26; November 3, 10, 17, 24; and December 1, 8.

*Medicine 19.**—Tropical therapeutics; 5 lectures by Dr. Aris-ton Bautista; Tuesdays, December 15, 22 and January 10, 17, 24.

*Medicine 20.**—Tropical etiology; 5 lectures by Dr. W. E. Musgrave; Thursdays, October 29 and November 5, 12, 19, 26.

DEPARTMENT OF OBSTETRICS

Obstetrics 5.—Tropical obstetrical problems; 5 lectures by Dr. Fernando Calderon; Thursdays, December 3, 10, 17 and January 5, 12.

DEPARTMENT OF PATHOLOGY

Pathology 7.—Tropical pathology; 5 lectures by Dr. B. C. Crowell; Wednesdays, August 19, 26 and September 2, 9, 16.

Pathology 9.—Tropical bacteriology; 5 lectures by Dr. ———; Mondays, January 4, 11, 18, 25 and February 1.

DEPARTMENT OF PEDIATRICS

Pediatrics 3.—Pediatric problems; 5 lectures by Dr. Jose Albert; Thursdays, May 7, 14, 21, 28 and June 4.

Pediatrics 4.—Infant feeding; 5 lectures by Dr. Acosta-Sison; Thursdays, June 11, 18, 25 and July 2, 9.

DEPARTMENT OF SURGERY

Surgery 15.—Tropical surgery; 5 lectures by Dr. P. K. Gilman; Thursdays, July 16, 23, 30 and August 6, 13.

Surgery 16.—Surgical pathology; 5 lectures and demonstration by Dr. George G. Davis; Thursdays, August 20, 27 and September 3, 10, 17.

Surgery 17.—Surgical technique; 5 lectures by Dr. Potenciano Guazon; Thursdays, September 24, 30 and October 7, 14, 21.

COURSES FOR SPECIAL STUDENTS

Legalized practitioners of medicine are admitted as special students of the school.

Arrangements may be made for such special courses as they may desire.

A university certificate of attendance will be given those special students who have completed in a satisfactory manner twenty-four or more weeks of graduate instruction.

A limited number of graduate students will be given intern service in the Philippine General and San Lazaro Hospitals.

List of Students Candidates for Degrees 1913-14

Denny, Oswald Evans, M. D.....	United States.
(University of Pennsylvania, 1913.)	
Lowell, Paul McCullough, M. D.....	United States.
(Jefferson Medical College, 1913.)	
Hardee, Walter P., M. D.....	United States.
(Jefferson Medical College, 1913.)	
Booth, James Lofton, M. D.....	Manila.
(University of the Philippines, 1914.)	
Coulter, J. S., M. D.....	U. S. Army.
(University of Pennsylvania, 1909.)	
Garton, A. C., M. D.....	Manila.
(George Washington University, 1907.)	

List of Special Students 1913-14

Arguelles, Manuel	Batangas.
(University of the Philippines, 1914.)	
Avellana, José M., L. M.....	Manila.
(University of Santo Tomas, 1913.)	
Diaz, Felipe C., L. M.....	La Union.
(University of Santo Tomas, 1913.)	
Domingo, Elias, M. D.....	Manila.
(University of the Philippines, 1913.)	
Elizardo, Primitivo F., M. D.....	Pampanga.
(University of the Philippines, 1913.)	
Feliciano, Hilarion T., M. D.....	Pampanga.
(University of the Philippines, 1913.)	
Galian, Sebastian, L. M.....	Manila.
(University of Santo Tomas, 1911.)	
Jimenes, Guillermo, L. M.....	Laguna.
(University of Santo Tomas, 1913.)	
Lejano, Artemio, M. D.....	Batangas.
(University of the Philippines, 1913.)	
Marfori, José F., L. M.....	Batangas.
(University of Santo Tomas, 1913.)	
Orosa, Sixto, M. D.....	Batangas.
(University of the Philippines, 1914.)	
Queral, Mena R., L. M.....	Ilocos Sur.
(University of Santo Tomas, 1913.)	
Raymundo, José M., L. M.....	Rizal.
(University of Santo Tomas, 1914.)	
Rodolfo, Albino, L. M.....	Zambales.
(University of Santo Tomas, 1913.)	
Rustia, Guillermo, L. M.....	Bulacan.
(University of Santo Tomas, 1913.)	

List of Special Students 1913-14—Continued

Valerio, Teodorico V., M. D.....	Tayabas.
(University of the Philippines, 1913.)	
Velarde, Herminio E., M. D.....	Nueva Ecija.
(University of the Philippines, 1913.)	
Villacorta, José S., M. D.....	Bulacan.
(University of the Philippines, 1914.)	
Bernardo, Manuel, L. M.....	Bulacan.
(University of Santo Tomas, 1912.)	
Gella, Bartolome, L. M.....	Antique.
(University of Santo Tomas, 1903.)	
Valera, Domingo, L. M.....	Abra.
(University of Santo Tomas, 1913.)	
Luna, Victoriano, M. D.....	Batangas.
(University of the Philippines, 1913.)	
Arvizu, Teodoro C., M. D.....	Cavite.
(University of the Philippines, 1914.)	
Fernando, Juan, M. D.....	Bulacan.
(University of the Philippines, 1914.)	
Gonzalez, Virgilio R., M. D.....	Pampanga.
(University of the Philippines, 1914.)	

SCHOOL OF PHARMACY

Officers of Administration

MURRAY BARTLETT,
President of the University.

WILLIAM EVERETT MUSGRAVE,
Dean, College of Medicine and Surgery.

ANDREW GROVER DU MEZ.
Director of the School.

COMMITTEE

Assistant Professor ANDREW GROVER DU MEZ, Chairman.

HARRY DRAKE GIBBS, Associate Professor of Chemistry.

ELMER DREW MERRILL, Associate Professor of Botany.

FELIX HOCSON, Instructor in Pharmacology.

———, Instructor in Pharmacy.

FACULTY

(Faculty of the College of Medicine and Surgery.)

Officers of Instruction

ANDREW GROVER DU MEZ, Ph. G., B. S., M. S.,
Assistant Professor of Pharmacology,
College of Medicine and Surgery.

VICTOR GEORGE HEISER, B. A., M. D.,
Professor of Hygiene,
Bureau of Health, Manila.

WILLIAM JOSEPH COLBERT, B. A.,
Associate Professor of Mathematics,
College of Liberal Arts.

DEAN SPRUILL FANSLER, Ph. D.,¹
Associate Professor of English,
College of Liberal Arts.

HARRY DRAKE GIBBS, B. S., Ph. D.,
Associate Professor of Chemistry,
Bureau of Science.

ROBERT BANKS GIBSON, Ph. D.,
Associate Professor of Physiology,
College of Medicine and Surgery.

ELMER DREW MERRILL, B. S., M. S.,
Associate Professor of Botany,
Bureau of Science.

ALFRED OGLE SHAKLEE, B. S., M. D.,
Associate Professor of Pharmacology,
College of Medicine and Surgery.

HARRIOT ELY FANSLER, Ph. D.,¹
Assistant Professor of English,
College of Liberal Arts.

ROY WALLACE HAMMACK, B. A., M. D.,
Assistant Professor of Pathology,
College of Medicine and Surgery.

MARIANO VIVENCIO DEL ROSARIO, Pharm. D., M. S.,
Assistant Professor of Chemistry,
College of Medicine and Surgery.

SALVADOR VIVENCIO DEL ROSARIO, B. A., M. S.,
Assistant Professor of Hygiene,
Bureau of Health, Manila.

WALTER ROBERT SHAW, Ph. D.,
Assistant Professor of Botany,
Bureau of Science.

AGUSTUS P. WEST, B. A., Ph. D.,
Assistant Professor of Chemistry,
College of Liberal Arts.

FRANCISCO AGCAOILI, A. B.,
Instructor in Chemistry,
Bureau of Science.

¹ Resigned.

OSWALD HANCE BLACKWOOD, B. A.,
Instructor in Physics,
College of Engineering.

CHARLES DE GUIRE CHRISTOPH, B. A.,
Instructor in English,
College of Liberal Arts.

FELIX HOCSON, B. A., Ph. C.,
Instructor in Pharmacology,
College of Medicine and Surgery.

DANIEL DE LA PAZ, M. D.,
Instructor in Pharmacology,
College of Medicine and Surgery.

SHIRLEY ELMER ROBERTS, B. A.,
Instructor in Mathematics,
College of Liberal Arts.

RALPH LESLIE RUSK, A. M.,
Instructor in English,
College of Liberal Arts.

OTTO JOHNS SCHEERER,
Instructor in German,
College of Liberal Arts.

LAWRENCE DILLER WHARTON, B. A., M. S.,
Instructor in Zoology,
College of Liberal Arts.

ALBERT HUNTINGTON WELLS, A. B.,
Instructor in Chemistry,
Bureau of Science.

ISABELO CONCEPCION, M. D.,
Assistant in Physiology,
College of Medicine and Surgery.

BERNARDO SAMSON, Ph. G., M. D.,
Assistant in Pathology,
College of Medicine and Surgery.

SCHOOL OF PHARMACY

INTRODUCTION

The School of Pharmacy, recently organized, has had its beginning within the University, and is a logical outgrowth of the Course in Pharmacy instituted under the administrative control of the College of Liberal Arts, June 5, 1911.

In 1910, upon the recommendation of the president of the University, a committee was appointed by the Board of Regents for the purpose of determining the efficiency of the instruction in pharmacy as given by the then existing schools and colleges in the Philippine Islands, and for the purpose of deciding upon the feasibility of giving such instruction at the University of the Philippines. As a result of the report of this committee, the Board of Regents appropriated the sum of ₱18,000, which sum was utilized in the purchasing of additional equipment and in the maintenance of the instructional force necessary to the offering of a modern course in pharmacy.

At the beginning of the school year July 1, 1911, the beginning class in pharmacy consisted of 32 members, 9 of which will receive the degree of Graduate in Pharmacy in April of this year, after having successfully completed three years of work. The total enrollment in pharmacy at present is 46. It was for the purpose of better administering to the general wants of these students, as well as adding to the efficiency of the instruction, that the Board of Regents, upon the recommendation of the president, authorized the establishment of a School of Pharmacy as a department of the College of Medicine and Surgery in January, 1914.

The courses in pharmacy outlined on the following pages are direct evidence of the thorough training which the student receives. They were modeled, in part, upon the courses offered by some of the leading universities of Europe and America, such modifications and additions being made as were necessary to conform with local conditions.

It is the aim of the school to give the student that theoretical and practical knowledge which will best fit him for the practice of Pharmacy in the Philippine Islands. We are most fortunate

in the matter of practical training as our students are required to serve in the Philippine General Hospital Dispensary, an institution which dispenses annually about 125,000 prescriptions. In addition, the opportunity for advanced work in pharmacy, botany, chemistry, and other fields of science is open to those students who desire to obtain special training in these subjects.

ADMISSION REQUIREMENTS

The requirements for admission to the school are essentially the same as those obtaining in the College of Liberal Arts (see page 87 of the University Catalogue). Applicants for admission should correspond with the director of the School of Pharmacy or the secretary of the University.

ADMISSION BY CERTIFICATE

Applicants who desire to be admitted without examination should send by mail all diplomas, certificates, and statements offered in place of the entrance examinations to the director of the school or the secretary of the University during the summer before the opening of the school year, not later than the 15th of May. For the details of admission by certificate see page 42 of the University Catalogue.

The applicant should not overlook the fact that the notebooks in the science subjects must be mailed with the certificates.

ADMISSION BY EXAMINATION

Applicants desiring to be admitted by examination should obtain permission to take the entrance examinations from the chairman of the University Committee on Admissions. Permission should be obtained at least two weeks before the date of the examination to be taken. For further details see pages 35 to 42 of the University Catalogue.

ADMISSION TO ADVANCED STANDING

Applicants for admission to advanced standing must meet the following requirements:

1. Submit evidence of their previous studies satisfactory to the faculty.
2. Pass an examination in each subject, or its equivalent, of the pharmacy course completed by the students of the class which they desire to enter.
3. Have studied as matriculated pharmacy students in an approved school or college of pharmacy for a period of time at

least equal to that already spent by the class which they seek to enter.

Candidates for graduation on advanced credit must complete at least the last two years of their studies in this school unless permission for a different arrangement has been obtained from the faculty.

4. Candidates will be admitted to examinations for advanced standing only upon special authority granted by the faculty. Such examinations will be held only at the time of the regular entrance examinations.

SPECIAL STUDENTS

Students desiring to take a special course in the School of Pharmacy must meet the same entrance requirements as regular students. They will be admitted only upon recommendation of a special committee and by vote of the faculty. Special courses do not lead to a degree. Graduates in pharmacy may be admitted as special students by action of the faculty.

EXAMINATIONS

Examinations will be held at the end of each semester upon the completion of each subject, and at such other times as the teacher in charge of a course may elect.

Candidates may be admitted and students passed from one class to the next with a condition in one or more subjects at the discretion of the faculty.

Conditions in subjects in pharmacy must be removed before the end of the semester immediately following or at the beginning of the next semester.

DEPOSIT AND FEES

Tuition in the school is free and there are no matriculation or graduation fees. Each student, however, will be required to deposit ₧10 with the secretary upon matriculation. This fee is deemed necessary to cover any losses of apparatus, books, supplies, etc., or any damage to university property which may properly become a charge against the students.

A fee of ₧5 per semester will be charged in all laboratory courses giving 3 units of credit for a semester. In courses where the credit to be obtained is more or less, the fee will vary accordingly.

An athletic fee of ₧1 per semester will be charged for each student for each semester.

LIBRARY FACILITIES

The library of the Bureau of Science is open to all students in pharmacy. The library at present contains complete sets of seven important journals of pharmacy along with many other reference works on pharmacy, chemistry, botany, and the medical sciences. The student should find ample opportunity for current reading as fourteen of the leading foreign publications pertaining to pharmacy are regularly received and are at his disposal.

LABORATORIES AND EQUIPMENT

No special building is allotted to the students in pharmacy alone; but they are compelled to do their work in the separate buildings housing the various departments of the University, a condition which possesses distinct advantages.

The work in botany and related subjects is given in the botanical laboratories which are well equipped with microscopes, specimens of plants, drugs, etc.

Chemistry is given in properly equipped laboratories in one of the old normal school buildings and the medical building.

The laboratory work in pharmacy is carried on in the medical building and in the Dispensary of the Philippine General Hospital. An idea of the value of the latter opportunity can be gained through the knowledge of the fact that over 125,000 prescriptions were dispensed at this institution during the past year.

COURSES AND DEGREES

Two courses of study leading to degrees are offered by this school—a three-year course and a four-year course.

The object of the shorter course is primarily to train students who desire to become dispensing pharmacists. The course meets all the requirements of the Pharmacy Board of Examiners and students completing it should find no difficulty in securing registration. On the satisfactory completion of this course, the student is granted the degree of Graduate in Pharmacy.

The four-year course, on the other hand, furnishes more extensive and more thorough training. It is so arranged that the student may do advanced work in bacteriology, botany, chemistry, or pharmacy and thereby equip himself for service as a pharmaceutical chemist, public analyst, food and drug expert, or for other work of a similar nature. The degree of Bachelor of Science in Pharmacy is conferred upon the candidates successfully completing this course.

REGISTRATION WITH THE PHARMACY BOARD OF EXAMINERS

In accordance with section 16 of Act No. 2382, an Act regulating the practice of pharmacy in the Philippine Islands, "every person desiring to begin the practice of pharmacy in the Philippine Islands after the passage of this Act shall apply to the Board of Pharmaceutical Examiners for a certificate of registration as registered pharmacist, but no certificate as second-class pharmacist (*practicante de farmacia*) shall be issued to any such person by the Board. The examination referred to by subsection (a) of section three of this Act shall be held in each of the following subjects: General chemistry, inorganic chemistry and organic chemistry applied to pharmacy; physics as applied to pharmacy; botany, pharmacology, pharmacognosy; qualitative analytical chemistry and its special application to the analysis of medicines; quantitative analytical chemistry, toxicology and microscopy; pharmaceutical practice and compounding of prescriptions. To be admitted to examinations applicants must pay the secretary-treasurer of the Board ten dollars as an examination fee, which amount shall serve such applicants as a fee entitling them to the certificate mentioned in section five, in case they pass their examination; they shall moreover establish: that they have completed twenty-one years of age; that they have been graduated from a legally chartered school, college or university; that they have been registered in the office of the secretary of the Board as apprentices in pharmacy; that they have had at least two years' practical experience in a pharmacy where the prescriptions of physicians or veterinarians are compounded and where drugs, medicines and poisons are sold at retail: *Provided*, That from and after July first, nineteen hundred and thirteen, every person presenting himself for examination who has graduated from a legally chartered school, college or university in which said subjects or pharmaceutical studies are taught, in addition to the requirements hereinbefore set forth, shall submit satisfactory evidence that he has followed and has been examined in the studies preliminary to the study of pharmacy in a school, college or university approved by the Secretary of Public Instruction: *Provided, further*, That any person who has heretofore been admitted to examination, may hereafter present himself for examination without the requirements referring to preliminary studies in a college approved by the Secretary of Public Instruction: *Provided, lastly*, That any candidate who has failed to pass the examination satisfactorily three times, may not again be examined before the Board prior to one year from

the date he was admitted to the last examination. It shall be the duty of the Examining Board to prepare the programme of subjects above mentioned in such manner that the same shall contain all of the knowledge that ought to be required from the candidate to show him capable of practicing pharmacy, which programme, after being approved by the Secretary of the Interior, shall be published in English and Spanish three months before the date of the examinations when it is to be used: *Provided*, That any alteration that the Examining Board may later wish to introduce in said programme shall also be approved by the Secretary of the Interior and published three months before the date of the examination. The Pharmaceutical Examining Board shall issue a registered pharmacist's certificate to anyone who has passed the examination mentioned in this section, but shall issue no certificate of *practicante de farmacia* to any second-class pharmacist. The Examining Board is hereby authorized to issue rules not in conflict with the provisions of this Act for the enforcement thereof, and prescribe penalties in said regulations not exceeding one hundred dollars fine and two months imprisonment or both at the discretion of the court. Such rules shall have the force of law when approved by the Secretary of the Interior."

CURRICULUM

SCHOOL OF PHARMACY

Colleges of Liberal Arts and Engineering.—Instruction is given in these colleges in the departments and subjects of botany, chemistry, English, French, German, mathematics, physics, and zoölogy.

College of Medicine.—Instruction is given by this college in the departments and subjects of bacteriology, hygiene, pharmacology, and physiology.

School of Pharmacy.—Instruction in pharmacy proper and applied chemistry is given in the laboratories of the school. Practical drug-store work is given in the pharmacy of the Philippine General Hospital.

Outline of the three-year course

FIRST YEAR			
First semester:	Units.	Second semester:	Units.
Botany 2	2	Botany 2	3
Chemistry 1	3	Chemistry 1	3
English 1	3	English 1	3
Mathematics 9	3	Mathematics 10	3
Physics 2-P	3	Physics 2-P	3
Zoölogy 2	3		
Total	18	Total	15

*Outline of the three-year course—Continued***SECOND YEAR**

First semester:	Units.	Second semester:	Units.
Botany 7	3	Botany 7	3
Chemistry 2	3	Chemistry 2	3
Chemistry 3	3	Chemistry 4	3
German or French (elective)	3	German or French (elective)	3
Pharmacy 1	3	Pharmacy 2	3
Pharmacy 10	1	Pharmacy 6	3
Drugstore practice		Drugstore practice	
Total	16	Total	18

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Bacteriology 6a	2	Botany 9	3
Botany 8	3	German or French (elective)	3
German or French (elective)	3	Hygiene 1	3
Pharmacy 5	3	Pharmacology 5	3
Pharmacy 7	3	Pharmacy 4	3
Physiology 3	3	Pharmacy 8	2
Drugstore practice		Drugstore practice	
Total	17	Total	17

	First year.		Second year.		Third year.		Total.	Total for departments.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.		
Bacteriology:	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.
6a. Pharmacy					99		99	99
Botany:								
2. Morphology and classification	148	148					296	888
7. Vegetable histology and Pharmacognosy			148	148			296	
8. Pharmacognosy					148		148	
9. Pharmacognosy						148	148	
Chemistry:								
1. General inorganic	148	148					296	888
2. Organic			148	148			296	
3. Qualitative analysis			148				148	
4. Quantitative analysis				148			148	
English:								
1. Introductory	50	50					100	100
French (elective):								
1. Elementary			50	50			100	200
2. Intermediate					50	50	100	
German (elective):								
1. Elementary			50	50			100	200
2. Intermediate					50	50	100	
Hygiene:								
1. Hygiene and sanitation						50	50	50
Mathematics:								
9. Algebra and trigonometry	50						50	100
10. Business arithmetic		50					50	

Outline of the three-year course—Continued

	First year.		Second year.		Third year.		Total.	Total for departments.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.		
Pharmacology:	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.
5. Pharmacology and toxicology						83	83	83
Pharmacy:								
1. Inorganic preparations			116				116	746
2. Galenical preparations				116			116	
4. Prescriptions						116	116	
5. Plant chemistry					116		116	
6. Pharmacopeial testing				83			83	
7. Pharmaceutical assaying					116		116	
8. Chemical toxicology						66	66	
10. History and jurisprudence			17				17	
Physics:								
2. P. General	50	50					100	100
Physiology:								
3. General					99		99	99
Zoölogy:								
2. General	148						148	148
Drug store practice			99	99	99	99	396	396

Outline of the four-year course

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Botany 2	3	Botany 2	3
Chemistry 1	3	Chemistry 1	3
English 1	3	English 1	3
Mathematics 9	3	Mathematics 4	3
Physics 2P	3	Mathematics 10	3
Zoölogy 2	3	Physics 2P	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Botany 7	3	Botany 7	3
Chemistry 2	3	Chemistry 2	3
Chemistry 3	3	Chemistry 4	3
German 1 or French 1	3	German 1 or French 1	3
Pharmacy 1	3	Pharmacy 2	3
Pharmacy 10	1	Total	15
Total	16		

Outline of the four-year course—Continued

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Bacteriology 6a	2	Botany 9	3
Botany 8	3	German 2 or French 2	3
German 2 or French 2	3	Hygiene 1	3
Pharmacy 5	3	Pharmacology 5	3
Pharmacy 7	3	Pharmacy 6	3
Physiology 3	3	Pharmacy 8	2
Drugstore practice		Drugstore practice	
Total	17	Total	17

FOURTH YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 8	3	Chemistry 8	3
Chemistry 9	3	Pharmacy 4	3
Hygiene 2	3	Pharmacy 9	3
Electives	6	Electives	6
Drugstore practice		Drugstore practice	
Total	15	Total	15

	First year.		Second year.		Third year.		Fourth year.		Total.	Total for department.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.	Seventh semester.	Eighth semester.		
Bacteriology:	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.
6a. Pharmacy					99				99	99
Botany:										
2. Morphology and classification	148	148							296	888
7. Vegetable histology and pharmacognosy			148	148	148				296	
8. Pharmacognosy						148			148	
9. Pharmacognosy							148		148	
Chemistry:										
1. General	148	148							296	1,332
2. Organic			148	148					296	
3. Qualitative analysis			148						148	
4. Quantitative analysis				148					148	
8. Advanced analytical							148	148	296	
9. Physiological							148		148	
English:										
1. Introductory	50	50							100	100
French: *										
1. Elementary			50	50					100	200
2. Intermediate					50	50			100	
German: *										
1. Elementary			50	50					100	200
2. Intermediate					50	50			100	

* Both courses are not required. A choice of either French or German is left to the student.

Outline of the four-year course—Continued

	First year.		Second year.		Third year.		Fourth year.		Total.	Total for departments.
	First semester.	Second semester.	Third semester.	Fourth semester.	Fifth semester.	Sixth semester.	Seventh semester.	Eighth semester.		
Hygiene:	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.
1. Hygiene and sanitation.....						50			50	83
2. Communicable diseases.....							33		33	
Mathematics:										
4. Plane trigonometry.....		50							50	150
9. Algebra and trigonometry.....	50								50	
10. Business arithmetic.....		50							50	
Pharmacology:										
5. Pharmacology and toxicology.....						83			83	83
Pharmacy:										
1. Inorganic preparations.....			116						116	862
2. Galenical preparations.....				116					116	
4. Prescriptions.....							116		116	
5. Plant chemistry.....					116				116	
6. Pharmacopoeial testing.....						83			83	
7. Pharmaceutical assaying.....					116				116	
8. Chemical toxicology.....						66			66	
9. Organic synthesis.....								116	116	
10. History and jurisprudence.....			17						17	
Physics:										
2P. General.....	50	50							100	100
Physiology:										
3. General.....					99				99	99
Zoology:										
2. General.....	148								148	148
Drugstore practice.....					99	99	99	99	396	396
Electives (to be taken in the fourth year).....							264	264	528	528

COURSES OF INSTRUCTION

BACTERIOLOGY

6a. In the Philippines the pharmacist of the provinces, in many places, undoubtedly, will be called upon in emergencies to assist the doctor in sanitary work or occasionally to act on his own initiative. For this reason it has been deemed advisable to include in his training sufficient bacteriology to prepare him for such work. The course will not be as extensive or complete as that given in the course for medical students.

A number of the more common pathogenic bacteria are studied in the laboratory, and the modes of their dissemination and their relation to diseases pointed out.

The principles of disinfection and sterilization are emphasized. A brief consideration of the laws of immunity is given and the methods of preparation of antisera and bacterial vaccines are described.

[Third year, first semester; 2 units; 99 hours.

BOTANY

Instruction in botany and related subjects is given by the Department of Botany of the College of Liberal Arts.

2. *Morphology and Classification of Plants*.—A course designed primarily for students of pharmacy. Special attention will be given to the study and classification of the local flora, the lectures and laboratory work to be supplemented by studies in the field and in the herbarium, including the preparation of a small herbarium by each student. Selected types of plants of economic importance as the source of drugs, etc., will be studied extensively. One object of the course is to give students of pharmacy a broad conception of the principles of taxonomy and the relationships of various groups of plants, as a basis for future work in botany and pharmacognosy.

Textbook; Kraemer, Botany and Pharmacognosy.

[Throughout the first year; 6 units; 797 hours. Associate Professor MERRILL.

7. *Vegetable Histology and Pharmacognosy*.—About one-third of the first semester will be occupied with general histology of the vegetative structure of seed plants. The remainder of the year will be devoted to a study of crude vegetable drugs of the United States Pharmacopœia. The roots, rhizomes, tubers, and bulbs will be taken up in the first semester, and in the second semester the woods, barks, leaves and leaflets, herbs, and flowers. Each student will be provided with a compound microscope for use in the laboratory. Identification will receive careful attention and there will be frequent tests of ability to determine drugs. Lectures on the main facts of the pharmacography of each drug.

Textbook; Kraemer, Botany and Pharmacognosy; Greenish, Microscopical Examination of Foods and Drugs.

[Throughout the second year; 6 units; 297 hours. Assistant Professor SHAW.

8. *Pharmacognosy*.—A study of the fruits, seeds, and miscellaneous crude vegetable and animal drugs of the United States Pharmacopœia.

[Third year, first semester; 3 units; 148 hours. Assistant Professor SHAW.

9. *Pharmacognosy*.—Powdered drugs and foods. Microscopical examination of the more important powdered drugs and foods. Practice in the determination of unknown powders and the recognition of adulterants.

[Third year, second semester; 3 units; 148 hours. Assistant Professor SHAW.]

CHEMISTRY

The courses in chemistry which do not apply directly to pharmacy, are given by the Department of Chemistry, College of Liberal Arts.

1. *Elementary General Inorganic Chemistry*.—Lectures, recitations, and laboratory work.

[Throughout the first year; 6 units; 297 hours.

Associate Professor GIBBS.

Mr. WELLS.

Mr. FRANCISCO AGCAOILI.

Mr. GUY CLINTON.

2. *Compounds of Carbon*.—Lectures, recitations and laboratory work.

[Throughout the second year; 6 units; 297 hours.

Assistant Professor WEST.

Mr. WELLS.

3. *Qualitative Analysis, Inorganic*.—Lectures, recitations, and laboratory work.

[Second year, first semester; 3 units; 148 hours.

Assistant Professor ROSARIO.

Assistant Professor WEST.

4. *Quantitative Analysis, Inorganic*.—Lectures, recitations, and laboratory work.

[Second year, second semester; 3 units; 148 hours.

Assistant Professor ROSARIO.

8. *Analytical Chemistry*.—A course for advanced students. Lectures and laboratory work. This course is designed to fit the needs of each student, and will include work in analysis of minerals, cements, sugars, foods, organic analysis, electrolytic methods, gases, waters, etc.

[Throughout the fourth year; 6 units; 297 hours.

Associate Professor GIBBS.

Assistant Professor WEST.

Mr. WELLS.

Mr. DAR JUAN.

9. *Physiological Chemistry*.—This course will include the quantitative examination of milk, urine, and other products of vital processes. Lectures, recitations, and laboratory work. Courses 1, 2, 3, and 4 are prerequisite.

[Fourth year, first semester; 3 units; 148 hours.

Assistant Professor ROSARIO.

Mr. ——— ———.

ENGLISH

Instruction in English is given by the English Department of the College of Liberal Arts.

1. *Composition*.—A practical course in writing and speaking English.

[Throughout the first year; 6 units; 99 hours. -----]

FRENCH

The courses of instruction are given by the French Department of the College of Liberal Arts.

1. *Elementary French*.—Elementary grammar and composition; translation and sight reading of simple French prose.

Textbook: Frazer and Squair, French Grammar.

[Throughout the second year; 6 units; 99 hours. -----]

2. *Intermediate French* (prerequisite, French 1).—Advanced grammar and composition; translation and sight reading of French prose.

[Throughout the third year; 6 units; 99 hours. -----]

GERMAN

Instruction in German is given by the German Department of the College of Liberal Arts.

1. *Elementary German*.—The object of the course is to enable students to use the German language (a) in answering questions concerning the contents of, and the elements of grammar in an easy piece of reading; (b) in writing a simple letter, a description of an object in view, or a similar easy composition; (c) in translating from easy English.

[Throughout the second year; 6 units; 99 hours. Mr. SCHERER.]

2. *Intermediate German*.—For statement see University Catalogue, page 65.

[Throughout the third year; 6 units; 99 hours. Mr. SCHERER.]

HYGIENE

1. *Lectures in Hygiene and Sanitation*.—This course comprises all the subjects usually taught, especial attention being given to the study of water, air, food, plumbing, disposal of human wastes, control of the city's water and milk supply, infant mortality, adulteration of foods, and other fundamental principles essential to practically applied hygiene and sanitation. Textbook; Harrington, Practical Hygiene.

[Third year, second semester; 3 units; 50 hours. Assistant Professor DEL ROSARIO.]

2. *Communicable Diseases*.—A study of the methods of combating the dangerous communicable diseases, especially those of intestinal origin like cholera, dysentery, intestinal parasites, etc.

[Fourth year, first semester; 2 units; 33 hours.

Professor HEISER.

Assistant Professor DEL ROSARIO.

MATHEMATICS

Instruction in mathematics is given by the Department of Mathematics of the College of Engineering.

4. *Plane Trigonometry*.—Development of general formulæ. Practical problems, computation methods. Textbook; Wentworth, *Plane Trigonometry*. Required of four-year students only.

[First year, second semester; 3 units; 50 hours.

9. *Algebra and Plane Trigonometry*.—Involution and evolution; inequalities; theory of exponents; imaginary and complex numbers; quadratic equations; ratio and proportion; variation; progression; logarithms. An elementary course in plane trigonometry, emphasis being placed on the solution of triangles. Textbook; Milne's *High School Algebra*; Wentworth's *Plane Trigonometry*.

[First year, first semester; 3 units; 50 hours. Associate Professor COLBERT.

10. *Business Methods and Arithmetic of Pharmacy*.—Arithmetic and business methods ordinarily used by commercial houses. Required of all first-year students in pharmacy and open to other students in the College of Liberal Arts.

[First year, second semester; 3 units; 83 hours. Mr. ROBERTS.

PHARMACOLOGY

5. *Pharmacology and Toxicology for Pharmacy Students*.—A laboratory and lecture course. The laboratory work will consist of the biological assay of drugs, a study of the action of toxic doses of drugs upon animals and the proper treatment under such conditions. The lectures will be closely correlated with the laboratory work except that the pharmacological action of drugs in therapeutic doses will also be taken up.

[Third year, second semester; 3 units; 83 hours.

Associate Professor SHAKLEE.

Doctor DE LA PAZ.

PHARMACY

1. *Inorganic Pharmaceutical Preparations*.—In the lectures and recitations, the processes and principles of preparation, the properties, including incompatibilities, and the methods of preservation of the inorganic substances used in medicine will be

discussed. The advantages and disadvantages of pharmacopœial methods will be considered, and also, where advisable, alternative preparations will be taken up and commented upon.

The laboratory work will consist in the actual making of the official preparations and in a study of their physical and chemical properties.

[Second year, first semester; 3 units; 116 hours. Mr. HOCSON.

2. *Galenical Preparations*.—In this course various galenicals will be prepared and studied in the laboratory and discussed in the lectures. The course will include the preparation and study of waters, spirits, syrups, elixirs, glycerites, oleates, liniments, infusions, decoctions, tinctures, fluid-extracts, extracts, etc.

[Second year, second semester; 3 units; 116 hours.
Assistant Professor DU MEZ.
Mr. HOCSON.

3. *Materia Medica and Medical Pharmacy*.—An introductory course in materia medica and pharmacy for students of medicine. The student will study in the laboratory the tests for the most important classes of drugs and drug preparations, and will be given some practice in the filling of his own prescriptions. Medical Course.

[Third year, first semester; 83 hours.
Assistant Professor DU MEZ.
Mr. HOCSON.

3a. *Materia Medica and Veterinary Pharmacy*.—A course designed for the purpose of giving students in Veterinary Science a knowledge of the physical and chemical properties of the drugs used in veterinary practice as well as some experience in preparing these drugs for administration. Course in Veterinary Science.

[Fourth year, first semester; 3 units; 83 hours. Mr. HOCSON.

3b. *Materia Medica and Pharmacy for Nurses*.—A lecture course in materia medica and pharmacy for the purpose of familiarizing nurses with the substances used in medicine and the methods of preparing them for administration. The lectures are accompanied by demonstrations.

[Throughout the year; 66 hours.

4. *Prescription Reading, Compounding and Dispensing*.—This course is devoted to a study of prescription Latin, prescription forms and abbreviations, the compounding of prescriptions, and the dispensing of medicines. It includes a systematic study of incompatibilities and a review of posology as it concerns the pharmacist.

[Third or fourth year, second semester; 3 units; 116 hours.
Assistant Professor DU MEZ.
Mr. HOCSON.

5. *Plant Chemistry*.—The course consists in lectures and laboratory exercises with special reference to medicinal plants. The laboratory work will include a study of the methods of plant analysis, and the isolation and identification of various plant constituents, such as ferments, resins, volatile oils, fatty oils, waxes, carbohydrates, glucosides, alkaloids, saponins, tanins, plant pigments, etc.

[Third year, first semester, 3 units; 116 hours.

Assistant Professor DU MEZ.

Mr. HOCSON.

5a. *Advanced Plant Chemistry*.—An advanced course in the chemistry of medicinal plants offered to the four-year students who desire a more extended knowledge of the methods of plant analysis than can be acquired in the elementary course. Hours to be arranged with the instructor.

[3 to 6 units; 148 to 297 hours.

Assistant Professor DU MEZ.

Mr. HOCSON.

6. *Pharmacopœial Testing*.—In the laboratory the student will make the most important physical and chemical tests of official drugs and preparations, including tests for identity, purity and adulteration. This will include determination of solubilities, of specific gravity, of the index of refraction, the time limit test for heavy metals, etc. The lectures will consist in the main of an explanation of the principles and methods used in the laboratory.

[Second or third year, second semester; 3 units; 83 hours.

Assistant Professor DU MEZ.

Mr. ———.

7. *Pharmaceutical Assaying*.—This course is devoted to a practical study of the chemical assays authorized by the Pharmacopœia of the United States. The lectures will include a critical discussion of the pharmacopœial method and of proposed changes in the methods.

[Third year, first semester; 3 units; 116 hours.

Assistant Professor DU MEZ.

Mr. HOCSON.

7a. *Advanced Pharmaceutical Assaying*.—A continuation of pharmacy 5; but covering a wider field as the assays will not be limited to the pharmacopœia. An elective course open to four year students after they have completed the first three years of prescribed studies.

[3 units; 116 hours.

Assistant Professor DU MEZ.

Mr. ———.

8. *Chemical Toxicology*.—This course will consist of lectures and laboratory work. In the laboratory the student will study the chemical properties of poisonous substances and the processes of detection in the presence of other substances, including foods, stomach contents, tissues, etc. Where practicable, quantitative estimations will also be made.

This course is also open to qualified students of medicine.

[Third year, second semester; 2 units; 66 hours.
Assistant Professor DU MEZ.
Mr. ———.

9. *Organic Synthesis*.—A laboratory course in the synthesis of organic compounds of pharmaceutical or medical interest. The course is designed especially for the students taking the four-year course.

[Fourth year, second semester; 3 units; 116 hours.
Assistant Professor DU MEZ.
Mr. ———.

10. *Pharmaceutical History, Jurisprudence, and Ethics*.—This course of lectures discusses the origin and development of the pharmaceutical profession, the legal status of the profession, the relations of the profession with the profession of medicine, and with the people; its relation to the nostrum evil, to drug habituation, etc.

[Second year, first semester; 1 unit; 17 hours.
Assistant Professor DU MEZ.
Doctor NEWBERNE and others.

11. *Pharmaceutical Research*.—There is an abundance of plant life in the Tropics, and the chemistry of the medicinal plants of the Philippines has hardly been touched. Climatic conditions in the Islands are such as to make necessary various changes in the United States Pharmacopœia preparations and methods. Research along these two lines is therefore of interest and of value. Work of this nature is open to all qualified students, the hours to be arranged with the instructor.

Assistant Professor DU MEZ.
Mr. HOCSON.

PHYSICS

Instruction in physics is given by the Department of Physics of the College of Engineering.

2P. *General Physics* (prerequisite, entrance physics or physics 1).—A course of lectures, demonstrations, and recitations covering the subjects of mechanics, molecular physics, heat, electricity, sound, and light. Especially designed to suit the needs of the student in pharmacy.

[Throughout the first year; 6 units; 99 hours. Mr. BLACKWOOD.

PHYSIOLOGY

3. *General Physiology* (short course).—A lecture and laboratory course designed especially for students in pharmacy and dentistry.

[Third year, first semester; 3 units; 83 hours.
Associate Professor GIBSON.
Doctor CONCEPCION.

ZOOLOGY

Instruction in Zoölogy is given by the Department of Zoölogy of the College of Liberal Arts.

(For statement see University Catalogue, page 81.)

[First year, first semester; 3 units; 148 hours. Mr. WHARTON.

*Three-year course.***FIRST SEMESTER.**

(First year, first semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.						
8 to 9.	Chemistry 1.		Chemistry 1.		Chemistry 1.	Botany 2.
9 to 10.						Chemistry 1.
10 to 11.	English 1.	Botany 2.	English 1.	Botany 2.	English 1.	
11 to 12.	Physics 2P.		Physics 2P.		Physics 2P.	Botany 2.
1 to 2.		Mathematics 9.		Mathematics 9.		Mathematics 9.
2 to 3.	Zoology 2.		Zoology 2.		Zoology 2.	
3 to 4.						

Three-year course—Continued.

SECOND SEMESTER.

(First year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.						
8 to 9.	Chemistry 1.		Chemistry 1.		Chemistry 1.	Botany 2.
9 to 10.						Chemistry 1.
10 to 11.	English 1.	Botany 2.	English 1.	Botany 2.	English 1.	
11 to 12.	Physics 2P.		Physics 2P.		Physics 2P.	Botany 2.
1 to 2.		Mathematics 10.		Mathematics 10.		Mathematics 10.
2 to 3.						
3 to 4.						

THIRD SEMESTER

(Second year, first semester)

7 to 8.	Pharmacy 10; Du Mez.			Pharmacy 1; Hocson.
8 to 9.				
9 to 10.				Chemistry 3.
10 to 11.	Botany 7.	Chemistry 3.	Botany 7.	Botany 7.
11 to 12.			Chemistry 3.	
1 to 2.			Pharmacy 1; Hocson.	
2 to 3	Chemistry 2.	Pharmacy 1; Hocson.	Chemistry 2.	Chemistry 2.
3 to 4.				

Elective.—German 1: Tuesdays, Thursdays, and Saturdays, 8 to 9. French 1: Tuesdays, Thursdays, and Saturdays, 8 to 9.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

Three-year course—Continued.

FOURTH SEMESTER.

(Second year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.	Pharmacy 6; Du Mez.		Pharmacy 6; Du Mez and Hocson.		Pharmacy 6; Du Mez and Hocson.	
8 to 9.	Pharmacy 2; Du Mez.					
9 to 10.						
10 to 11.	Botany 7.		Botany 7.		Botany 7.	Chemistry 4.
11 to 12.		Chemistry 4.		Chemistry 4.		
1 to 2.						
2 to 3.	Chemistry 2.	Pharmacy 2; Du Mez and Hocson.	Chemistry 2.	Pharmacy 2; Du Mez and Hocson.	Chemistry 2.	
3 to 4.						

Lectures.—German 1: Tuesdays, Thursdays, and Saturdays, 8 to 9. French 1: Tuesdays, Thursdays, and Saturdays, 8 to 9.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

FIFTH SEMESTER

(Third year, first semester)

7 to 8.					
8 to 9.					
9 to 10.					
10 to 11.	Bacteriology Crowell.	6a; Pharmacy 7; Du Mez and _____.	Bacteriology Crowell.	6a; Pharmacy 7; Du Mez and _____.	Physiology 3; Gibson. Physiology 3; Gibson.
11 to 12.					
1 to 2.					
2 to 3	Pharmacy 5; Du Mez and _____.	Botany 8.	Pharmacy 5; Du Mez and _____.	Botany 8.	Pharmacy 5; Du Mez. Botany 8.
3 to 4.					

Electives.—German 2: Mondays, Wednesdays, and Fridays, 8 to 9. French 2: Mondays, Wednesdays, and Fridays, 8 to 9.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

Three-year course—Continued.

SIXTH SEMESTER.

(Third year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8						
8 to 9.						
9 to 10.	Pharmacology 5; De la Paz.		Pharmacology 5; De la Paz.			Pharmacy 8; Du Mez and _____.
10 to 11.	Pharmacy 4; Du Mez.	Pharmacy 4; Du Mez and Hocson.		Pharmacy 4; Du Mez and Hocson.	Pharmacology 5; De la Paz.	
11 to 12.						
1 to 2.		Botany 9.				
2 to 3.				Botany 9.		Botany 9.
3 to 4.	Hygiene 1; S. del Rosario.		Hygiene 1; S. del Rosario.		Hygiene 1; S. del Rosario.	

Electives.—German 2: Mondays, Wednesdays, and Fridays, 8 to 9. French 2: Mondays, Wednesdays, and Fridays, 8 to 9.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

Four-year course.

FIRST SEMESTER.

(First year, first semester.)

7 to 8.	Chemistry 1.		Chemistry 1.		Chemistry 1.	Botany 2.
8 to 9.						
9 to 10.						Chemistry 1.
10 to 11.	English 1.	Botany 2.	English 1.	Botany 2.	English 1.	
11 to 12.	Physic 2P.		Physic 2P.		Physic 2P.	Botany 2.
1 to 2.		Mathematics 9.		Mathematics 9.		Mathematics 9.
2 to 3.	Zoology 2.		Zoology 2.		Zoology 2.	
3 to 4.						

Four-year course—Continued.

SECOND SEMESTER.

(First year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.						
8 to 9.	Chemistry 1.		Chemistry 1.		Chemistry 1.	Botany 2.
9 to 10.						Chemistry 1.
10 to 11.	English 1.	Botany 2.	English 1.	Botany 2.	English 1.	
11 to 12.	Physic 2P.		Physic 2P.		Physic 2P.	Botany 2.
1 to 2.	Mathematics 4.	Mathematics 10.	Mathematics 4.	Mathematics 10.	Mathematics 4.	Mathematics 10.
2 to 3.						
3 to 4.						

THIRD SEMESTER

(Second year, first semester.)

7 to 8.	Pharmacy 10; Du Mez.	German 1 or French 1.			Pharmacy 1; Hocson.
8 to 9.		German 1 or French 1.			
9 to 10.					
10 to 11.	Botany 7.	Botany 7.	Chemistry 3.	Botany 7.	Chemistry 3.
11 to 12.		Chemistry 3.			
1 to 2.					
2 to 3.	Chemistry 2.	Pharmacy 1; Hocson.	Chemistry 2.	Pharmacy 1; Hocson.	Chemistry 2.
3 to 4.					

The time for taking a third hour of German or French should be arranged with the instructor in charge.

Four-year course—Continued.

FOURTH SEMESTER.

(Second year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.						
8 to 9.	Pharmacy 2; Du Mez.	German 1 or French 1.		German 1 or French 1.		
9 to 10.						
10 to 11.	Botany 7.		Botany 7.		Botany 7.	Chemistry 4.
11 to 12.		Chemistry 4.		Chemistry 4.		
1 to 2.						
2 to 3.	Chemistry 2.	Pharmacy 2; Du Mez and Hocson.		Pharmacy 2; Du Mez and Hocson.	Chemistry 2.	
3 to 4.						

The time for taking a third hour of German or French should be arranged with the instructor in charge.

FIFTH SEMESTER

(Third year, first semester.)

7 to 8.				
8 to 9.	German 2 or French 2.	German 2 or French 2.		German 2 or French 2.
9 to 10.				
10 to 11.	Bacteriology 60; Crowell.	Pharmacy 7; Du Mez and _____.	Pharmacy 7; Du Mez and _____.	Physiology 3; Gibson. Physiology 3; Gibson.
11 to 12.				
1 to 2.				
2 to 3.	Pharmacy 5; Du Mez and _____.	Pharmacy 5; Du Mez and _____.	Botany 8.	Pharmacy 5; Du Mez.
3 to 4.				Botany 8.

Drugstore practice.—Six hours per week; hours to be arranged with the instructor.

Four-year course—Continued.

SIXTH SEMESTER.

(Third year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.	Pharmacy 6; Du Mez.					
8 to 9.	German 2 or French 2.		German 2 or French 2.		German 2 or French 2.	
9 to 10.	Pharmacology 5; De la Paz.		Pharmacology 5; De la Paz.		Pharmacology 5; De la Paz.	Pharmacy 8; Du Mez and _____.
10 to 11.	Pharmacy 4; Du Mez.	Pharmacy 4; Du Mez and Hocson.		Pharmacy 4; Du Mez and Hocson.		
11 to 12.						
1 to 2.			Pharmacy 6; Du Mez and Hocson.		Pharmacy 6; Du Mez and Hocson.	
2 to 3.		Botany 9.		Botany 9.		Botany 9.
3 to 4.	Hygiene 1; S. del Rosario.		Hygiene 1; S. del Rosario.		Hygiene 1; S. del Rosario.	

Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

SEVENTH SEMESTER
(Fourth year, first semester.)

7 to 8.							
8 to 9.							
9 to 10.							
10 to 11.				Chemistry 8.		Chemistry 8.	Chemistry 8.
11 to 12.							
1 to 2.						Chemistry 9.	
2 to 3.				Chemistry 9.			
3 to 4.				Hygiene 2; S. del Rosario.	Hygiene 2; S. del Rosario.		

Electives.—Six units of work should be elected preferably in one or more of the following subjects: Bacteriology, botany, chemistry, or pharmacy.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

Four-year course—Continued.

EIGHTH SEMESTER.

(Fourth year, second semester.)

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
7 to 8.						
8 to 9.						
9 to 10.						
10 to 11.	Pharmacy 4; Du Mez.	Pharmacy 4; Du Mez and Hocson.	Chemistry 8.	Pharmacy 4; Du Mez and Hocson.	Chemistry 8.	Chemistry 8.
11 to 12.	Pharmacy 8; Du Mez.					
1 to 2.						
2 to 3.	Pharmacy 9; Du Mez and _____.		Pharmacy 9; Du Mez and _____.			
3 to 4.						

Electives.—Six units of work should be elected preferably in one of the following subjects: Bacteriology, botany, chemistry, or pharmacy.
Drug-store practice.—Six hours per week; hours to be arranged with the instructor.

STUDENTS, SCHOOL OF PHARMACY

During the past three years the students taking pharmacy have been enrolled in the College of Liberal Arts. The following students are so enrolled at present, but with the opening of the new school year they will be classed as students of the School of Pharmacy.

Three-year Pharmacy Course.

FIRST YEAR

Abarques, Ramón, Pagsanjan, Laguna.	Limson, Marciano, Guagua, Pampanga.
Agrava, Angela, Manila.	Mallari, Enrique, Macabebe, Pampanga.
Arguelles, José, Manila.	Matias, Maria, Bacacaya, Albay.
Chuapoco, Josefa, Manila.	Nicolas, Manuel, Cavite, Cavite.
Espinosa, Manuel, Tarlac, Tarlac.	Ongsiaco, Emilia, Manila.
Evangelista, Raymunda, San Fernando, Pampanga.	Remollo, Pacifico, Aguguitan, Oriental Negros.
Feliciano, José, San Fernando, Pampanga.	Suaco, Miguela, Manila.
Felizardo, Mamerta, Manila.	Tiangco, Enrique, Balanga, Bataan.
Garcia, Rosario, Manila.	Trijo, Elisea, Sorsogon, Sorsogon.
Himojales, Francisco, La Paz, Iloilo.	Vera, Eusebio de, Montalban, Pasig.
	Villegas, Tarcila, Arayat, Pampanga.

SECOND YEAR

Abadilla, Honorio, Lucena, Tayabas.	Llamas, Dionisio, Pagsanjan, Laguna.
Briones, Galicano, Tarlac, Tarlac.	Santos, José, Arayat, Pampanga.
Cordero, Pacita, Pagsanjan, Laguna.	Villanueva, Candelaria, Batangas, Batangas.
Gatmaytan, Encarnación, Malolos, Bulacan.	Vitug, Hermogena, V., Lubao, Pampanga.
Gloria, José, Bauan, Batangas.	Vitug, Victor, V., Lubao, Pampanga.
Herrera, Pilar Perez, San Fernando, Pampanga.	

THIRD YEAR

Francisco, Modesta, Batangas, Batangas.	Quesada, Eugenio, Paete, Laguna.
José, Lino, Santa Cruz, Manila.	Ramos, Crecencia, Vigan, Ilocos Sur.
Jugo, Filomena, Bacolod, Negros Occidental.	Tirona, Maria, Cavite, Cavite.
Marañon, Joaquin, Manduriao, Iloilo.	Yulo, Teresa, Bago, Negros Occidental.

Four-year Pharmacy Course

SECOND YEAR

Alvarez, Dolores, Santa Cruz, Laguna.
Chaves, Rosa, Manila.

Special students

Panlilio, Anatolia, San Fernando, Pampanga.

THE UNIVERSITY OF THE PHILIPPINES

THE COLLEGE OF AGRICULTURE

FIFTH ANNUAL ANNOUNCEMENT AND CATALOGUE

Faculty of the College of Agriculture

MURRAY BARLETT,
President of the University.

EDWING BINGHAM COPELAND, Ph. D.,
Dean of the College of Agriculture.
Professor of Plant Physiology.

GEORGE PATRICK AHERN, LL. B.,
Professor of Forestry.

CHARLES FULLER BAKER, B. S., M. A.,
Professor of Agronomy.

HORACE GROVE DEMING, Ph. D.,
Associate Professor of Chemistry.

ALBERT GEORGE GLOTT, C. E., M. E.,
Associate Professor of Agricultural Engineering.

HAROLD CUZNER, B. S. F.,¹
Assistant Professor of Agronomy and Farm Superintendent.

SAMUEL BERT DURHAM, B. S.,
Assistant Professor of Animal Husbandry.

FREDERICK WILLIAM FOXWORTHY, Ph. D.,
Assistant Professor of Dendrology.

EDGAR MADISON LEDYARD, B. S. A.,
Assistant Professor of Entomology; Superintendent of Buildings and Sanitation; Property
Officer, and Cashier.

DONALD MAXWELL MATTHEWS, M. S. F.,
Assistant Professor of Forestry and Secretary of the School of Forestry.

OLIVER FREDERICK BISHOP, Ph. B., M. F.,
Instructor in Dendrology.

INOCENCIO ELAYDA, B. S. A.,
Instructor in Agronomy and Farm Foreman.

FRANK CALEB GATES, B. A., Ph. D.,
Instructor in Botany.

RICHARD MORRIS HOLMAN, B. A.,¹
Instructor in Botany.

LEON SANFORD JOHNSTON,
Instructor in Mathematics.

¹ On leave.

MYRON DONALD KNAPP, A. B., M. S. F.,
Instructor in Forest Engineering.

CAROLINE STEIN LEDYARD, B. A.,
Instructor in German.

MAURICIO JULIAN OTEYZA, B. S. A., M. F.,
Instructor in Silviculture.

DOROTHY A. RUNDLES,
Instructor in English.

JOHN CLINTON RUNDLES,
Instructor in Agronomy.

EDWIN EMIL SCHNEIDER, B. S.,
Lecturer in Wood Technology.

MANUEL ROXAS, B. A., B. S. A.,
Assistant in Chemistry.

BIENVENIDO MARIA GONZALEZ, B. Agr.,
Assistant in Animal Husbandry.

MARCELO CRISOSTOMO,
Librarian.

THE COLLEGE OF AGRICULTURE

HISTORY

The College of Agriculture was the first college to be organized as a part of the University, beginning its class work on June 14, 1909. Classes met at first in the houses of the faculty, then in tents loaned by the Bureau of Education. This condition lasted until October 4 of that year, when the completion of a building of mixed materials made it possible for classes to meet on the college farm. The enrollment during the first year was 56.

The first permanent buildings of the college are:

(1) An administration and academic building, containing the office of the dean, five class rooms, two library rooms, and a large reading room.

(2) A laboratory building, housing the departments of botany and chemistry.

(3) A stable and bodega.

(4) A silk-culture house.

(5) A plant-propagation house.

(6) An electric power house.

(7) A building for animal husbandry.

These buildings are all constructed of reinforced concrete. The structure which at first housed the entire institution is now devoted to the department of agronomy.

The attendance at the college during its second year was 95, in the third year, 175; in the fourth, 253. It is now 294.

GENERAL INFORMATION

Los Baños can be reached from Manila by boat or by rail. There are three trains daily, each way.

Site.—The college occupies a tract of about 95 hectares of land, situated at the foot of Mount Maquiling and about 3 kilometers east of the village of Los Baños. The land is diversified, and permits the cultivation of every important crop of the Philippines. An excellent macadamized road leads from Los Baños to the college.

Life of students.—A large majority of the students live in

clubhouses, most of which are located on the campus, where they form a *barrio*. The college furnishes, without rent, land for the houses, and oversees the sanitation and neatness of the *barrio*. The clubs own their houses, and in part have built them. The average cost has been about ₱25 a student. The cost of living in these clubs varies from less than ₱10 a month to ₱20. The Bureau of Forestry houses its scholars.

Student activities.—The students have organized themselves into a student body, with its several committees on athletics, finance, social affairs, domestic improvement, and publication. They publish a monthly magazine, devoted to the promotion of the agricultural and forest interests of the Islands. Students' athletics have taken the direction of baseball, tennis, and track work. There are the usual literary, musical and technical organizations. Various places of agricultural or other interest near los Baños are visited by the students. The classes in animal husbandry visit the Alabang stock farm. The classes in botany make an annual trip to the summit of Mount Banajao. Several students have delivered lectures during the year before different bodies with agricultural interests.

Aid to students.—During the year 1913-14 twelve "pensionados" have been sent to the college by the Bureau of Education. They are recommended by the division superintendents of the several provinces, the number from each being determined by the Director of Education. They are under contract to serve as teachers when they leave the college for the same length of time that they held the pension, or scholarship. The Bureau of Forestry pays a pension of ₱25 a month to 53 students. Upon completion of the course in forestry, they will enter the service as rangers, to which positions they will be admitted without examination.

A few of the more advanced students are employed as student assistants, receiving a maximum salary of ₱25 a month. Students are also appointed janitors for the college buildings at the rate of ₱14 a month. The superintendent is authorized to employ as many students as he may need, at 10 centavos an hour; at this rate, bright and energetic students can pay their necessary living expenses and keep up the required work of the college. There will be an opportunity during the coming year for at least fifty students to earn their living in this way.

Library.—The library occupies two rooms in the academic building. It contains standard works of reference, standard

works on agriculture and kindred sciences, and a fairly complete collection of publications on tropical agriculture. It is open from 7 a. m. to 9 p. m.

The equipment of the college is described under the several departments.

Fees.—Tuition in the college is free, and there are no matriculation or graduation fees. A deposit of ₱15 must be made at the beginning of each year by each student except those in the first two years of the six-year course. This is to cover destruction of property, and the balance remaining after paying for property lost or destroyed is returned at the end of the year. In all laboratory and field work the students are responsible for all college property given into their care.

ADMISSION AND GRADUATION

The College of Agriculture offers four undergraduate courses:

(1) A six-year course in agriculture, based on the completion of the intermediate course in the public schools, and leading to the degree of Bachelor of Agriculture.

(2) A four-year course in agriculture, based on the completion of the high-school course of the public schools, and leading to the degree of Bachelor of Science in Agriculture.

(3) A four-year course in forestry, based on the completion of the intermediate course of the public schools; graduates of this course receive a diploma.

(4) A four-year course in forestry for high-school graduates, leading to the degree of Bachelor of Science in Forestry. Candidates for this degree can substitute two years' service as rangers for one of the years in residence.

Students trained elsewhere than in the public schools can be admitted:

(a) By certificate.

(b) By examination covering the subjects for which credit is claimed, whether for admission or advanced standing.

Candidates for advanced standing in any course will be given credit for such subjects as they satisfy the faculty, by certificate or by examination, that they have completed elsewhere, though the college will not graduate any student who has not spent at least one school year in residence. No instruction given elsewhere in the Philippine Islands is likely to prepare a student to complete either course in agriculture in less than three years, or in forestry in less than two years.

THE SIX-YEAR COURSE IN AGRICULTURE

FIRST YEAR	THIRD YEAR	FIFTH YEAR
English I.	Chemistry I.	Elective.
Mathematics I.	Mathematics III.	Physics.
German I.	Zoölogy.	Animal Husbandry I.
Botany I.	Agronomy I.	Agronomy III.
SECOND YEAR	FOURTH YEAR	SIXTH YEAR
English II.	Chemistry II.	Elective.
Mathematics II.	Rural Engineering.	Elective.
German II.	Entomology.	Agronomy IV or V.
Botany II.	Agronomy II.	

Any course given in the college, and not required, may be presented as an elective. Besides the courses described in the following pages, two years of Spanish may be elected; but credit by examination in Spanish will not be given in excess of the time that the subject has been studied regularly elsewhere. At least one elective must be chosen from chemistry, rural engineering, or animal husbandry.

Each candidate for graduation must present a thesis, representing a year's work in one subject, and counting as one elective credit; at least one regular elective must be chosen in the department in which the thesis is prepared. Most of the theses are prepared upon subjects relating to agronomy.

COURSES OF INSTRUCTION

ENGLISH

DOROTHY A. RUNDLES, Instructor in English.

English I.—The purpose of this course is to give the student a ready and accurate use of written and spoken English. To this end especial emphasis will be laid upon theme work, conversation, and reading. Textbook, Maxwell's, "Writing in English."

[First year. Mrs. RUNDLES.]

English II.—A continuation of Course I, together with a careful study of certain standard works.

[Second year. Mrs. RUNDLES.]

English III.—The object of this course, as of the preceding, is improvement in the spoken and written use of the language. Preparation of themes, essays, arguments and debates. The subjects will be matters of interest in agriculture, forestry and industrial economics. Prerequisite, English I and II and at least two other credits in language.

[Elective in the six-year course. Mrs. RUNDLES.]

MODERN LANGUAGES

CAROLINE STEIN LEDYARD, B. A., Instructor in German.

German I.—The purpose of this course is to make the pupils familiar with the essentials of German grammar and to enable them to read moderately difficult German with readiness. A considerable amount of composition and conversation in German is introduced.

Textbooks: Joynes-Meissner, German Grammar (Part I); Wenckeback, Glück Auf; and other easy texts.

[First year. Mrs. LEDYARD.

German II.—The object of this course is to prepare the student for the reading of scientific texts, to enable him to translate intelligently and with ease any scientific work which he may wish to read in preparation for his profession. Textbooks: Joynes-Meissner, Grammar; Dippold, Scientific German Reader, with scientific selections from practical zoölogical, botanical, and agricultural books. Lessons in composition and conversation are continued.

[Second year. Mrs. LEDYARD.

French I.—A study of grammatical construction and the reading of simple prose.

Textbooks: French Grammar, Fraser and Squair; Easy French, Snow and Lebon; Rizal, French Exercises; and other easy selections.

[Elective. Mrs. LEDYARD.

French II.—This course aims to prepare the student to read any French scientific works he may have occasion to consult in the other courses in this college.

Textbooks: French Grammar, Fraser and Squair; Scientific French Reader, Herdler, and scientific selections from the French texts in the college library.

[Elective. Mrs. LEDYARD.

MATHEMATICS

LEON SANFORD JOHNSTON, Instructor in Mathematics.

Mathematics I and II. Elementary Algebra and Geometry.—This course is identical with the same work in the first two years of the high school; algebra and half of plane geometry are covered.

[First and second years. Mr. JOHNSTON and student assistants.

Mathematics III. Plane Geometry and Trigonometry.—The first half of the course completes plane geometry. The second half comprises plane trigonometry and elementary surveying. The students are required to become familiar with the use of the

compass, tape, transit, and level, and able to measure and plat a field.

[Third year. Mr. JOHNSTON and student assistants.

PHYSICS

ALBERT GEORGE GLODT, C. E., M. E., Associate Professor of Agricultural Engineering.

Lectures, demonstrations, and practical experiments with special stress on the application of physical principles to agricultural practice.

[Fifth year. Associate Professor GLODT.

AGRICULTURAL ENGINEERING

ALBERT GEORGE GLODT C. E., M. E., Associate Professor of Agricultural Engineering.

Agricultural Engineering I.—This course is expected to prepare the students to perform ordinary farm engineering without recourse to expert engineers. It includes surveying, irrigation, roads, farm buildings, and farm machinery. Work in surveying and irrigation is carried through the year. Road and bridge construction is taught during the first semester, and instruction is given on buildings and machinery during the later part of the year. The Philippine irrigation and road laws are studied in detail.

[Fourth year. Associate Professor GLODT.

Agricultural Engineering II.—An advanced course in farm, sugar, and rice machinery.

[Elective. Associate Professor GLODT.

CHEMISTRY

HORACE GROVE DEMING, Ph. D., Associate Professor of Chemistry.
MANUEL ROXAS, M. S., Assistant in Chemistry.

The work in chemistry occupies the east half of the laboratory building. There are a room with desks for 80 students, a stock room, polariscope room, and a room for the preparation of samples and reagents. For the work in sugar analysis there are a cane crusher, a polariscope, and a good supply of hydrometers and calibrated glassware. Apparatus now on hand or shortly to be installed will make possible the simultaneous extraction of 40 samples of copra, rubber, or bagasse. A still supplies 10 liters of nitrogen-free water per hour, and a digestion apparatus makes possible the determination of nitrogen in 20 samples at one time.

The courses given are intended to emphasize the applications of chemistry to daily life and to agriculture; and, since agri-

culture is concerned with the production of organic matter through the activity of plants and animals, a great deal of work is given in organic chemistry and organic analysis. A number of important theoretical topics are necessarily omitted to secure time for the constant drilling in chemical arithmetic that precedes and accompanies the work in agricultural analysis.

Chemistry I.—Lectures, recitations, and laboratory work in inorganic chemistry. Qualitative analysis of the metals and acids of agricultural importance, and the quantitative determination of calcium, magnesium, phosphorus, and potassium.

[Third year.
Associate Professor DEMING.
Mr. ROXAS.

Chemistry II.—Lectures and recitations in economic organic chemistry. Determination of nitrogen in manures and composts, analysis of bamboo, fruits, tubers, legumes and cereals, copra, sugar cane, and raw sugar.

[Fourth year.
Associate Professor DEMING.
Mr. ROXAS.

Chemistry III.—Lectures, quizzes, and laboratory work on the application of chemical methods to agricultural science. The last half of the year is given to a study of the chemistry of the cane-sugar industry, including the chemical control of sugar centrals.

[Elective. Associate Professor DEMING.

Chemistry X.—Investigation in agricultural chemistry.

[Elective. Associate Professor DEMING.

ENTOMOLOGY

EDGAR MADISON LEDYARD, B. S. A., Assistant Professor of Entomology.

The department of entomology occupies a lecture room and a commodious laboratory, well equipped for work. It has a model breeding house and complete facilities for sericulture. The insect collection, which is stored in specially constructed boxes and cases, is large and rapidly increasing. A small zoölogical laboratory has been completed during the past year.

General Zoölogy.—An elementary course on structure, classification, and life histories to prepare the student for work in economic entomology and animal husbandry in this college. While the entire animal kingdom is covered in the outline, especial attention is paid to the principles of ecology and breeding. As texts, Linville and Kelly's General Text-Book of Zoölogy and Ritchie's Human Physiology are used. In addition the following books are used for reference: A Treatise on Zoölogy,

edited by Lancaster; The Cambridge Natural History, edited by Harmer and Shipley; Fauna of British India, edited by Blanford; and various other standard texts.

[Third year. Assistant Professor LEDYARD.

2. Economic Entomology.—The first part of the year is devoted to the study of insect anatomy and classification. Each student is expected to familiarize himself with the leading groups found in the vicinity, and to add to the collection a number of insects taken, preserved and labeled by himself. At some time during the year each student is required to breed from eight to twelve species of insects, making himself familiar with the life history of each. For a time each year the class in economic entomology will be in actual charge of the sanitary work at the college, paying particular attention to the insects that carry diseases. During the latter part of the year attention is paid to the insect pests of farms, gardens, forests, domestic animals and households. Each student will be given practice in the preparation and use of insecticides and the various other methods of controlling insects. Each student will be required to take a brief course in sericulture. Textbooks: Sanderson and Jackson, *Elementary Entomology*; Folsom; *Entomology with reference to its Biological and Economic Aspects*.

[Fourth year. Assistant Professor LEDYARD.

ANIMAL HUSBANDRY

SAMUEL B. DURHAM, B. S., Assistant Professor of Animal Husbandry.

The college has a concrete building which furnishes ample office and class room for the present need of the department of Animal Husbandry. It has a bodega and a small stable, and a sufficient number of hog lots to permit the conducting of valuable pasture experiments in pork production. There are four model hen houses furnished with plenty of inclosed yards and a concrete floor with pens made of wire netting suitable for the growing of young chicks. The area used for growing forage and pasture crops is about 10 hectares. The college has work cattle, Berkshire and Yorkshire hogs, a number of flocks of different breeds of chickens, and a small herd of goats.

Animal Husbandry I.—Elements of animal husbandry. The work in this course falls under three heads. First, a study of animal form as an index of value for food production in cattle, sheep, goats, and swine, and of efficiency in labor in carabao, cattle, and horses. Score-card work. Textbook: *Judging Live Stock*, Craig. Second, a through course in poultry-culture; the study of breeds, production and management, including work

with incubators. Textbook: Principles and Practice of Poultry Culture by Robinson. Third, an elementary study of the diseases of stock and as much of obstetrics as is essential to the stockman.

A limited number of lectures is given on the composition and value of different kinds of feed, and on the most essential principles of breeding.

[Fifth year. Mr. DURHAM.

Animal Husbandry II.—A study of the breeds of live stock with especial attention to judging the native pony, the carabao and cattle. Textbook: Types and Breeds of Farm Animals by Plumb.

This course also includes the study of feeds and feeding, the composition of the animal body, digestion, and the related functions, and the composition of feeds and the compounding of rations.

[Elective. Mr. DURHAM.

BOTANY

EDWIN BINGHAM COPELAND, Ph. D., Professor of Plant Physiology and Chief of the Department of Plant Physiology.

CHARLES FULLER BAKER, M. A., Professor of Agronomy.

HAROLD CUZNER, B. S., Assistant Professor of Agronomy.¹

FREDERICK WILLIAM FOXWORTHY, Ph. D., Assistant Professor of Dendrology.

FRANK CALEB GATES, Ph. D., Instructor in Botany.

RICHARD MORRIS HOLMAN, B. A., Instructor in Botany.¹

The department of botany has for class work a laboratory seating seventy students, and the use, with the department of agronomy, of another room for physiological experimentation. It has thirty-six compound microscopes and the other usual equipment for morphological and elementary botanical work; a cathetometer, clinostat, auxanometers, transpiration machines, and all other ordinary physiological apparatus; solid concrete tables for precision work; a large collection of fungi; and a mounted herbarium of about 4,000 sheets.

More valuable for botanical work than the indoor equipment is the environment of the college. From the lake to the mossy forest on the summit of Maquiling, every great tropical formation except the mangrove and the Alpine scrub is present within convenient reach. Aside from the large number of introduced plants on the campus, there is an extraordinarily large local flora; and this vegetation never rests.

Botany I. Elementary Botany.—This course follows the outline given in Bulletin No. 24, series of 1906, Bureau of Education. Aside from the regular laboratory work and lectures, instruction is given in the collection, preparation, and determination of

¹ On leave.

vascular plants, and each student must present an herbarium. Familiarity with local ecology is acquired by frequent field trips.

[First year. Professor COPELAND.

Botany II. Elementary Physiology.—Lectures and collateral reading on growth, nutrition, irritability, reproduction, and variation, with laboratory work on growth and nutrition. The course of instruction follows Pfeffer's *Physiology of Plants*. Individual garden plots, kept by the students, furnish a part of the material for study and for practice in making records of cultures. Prerequisite, Botany, or an entrance credit in botany.

[Second year.
Professor COPELAND.
Doctor GATES.

Botany IIa.—This course is for students preparing for technical work in forestry and is made up of the subjects fundamental to forest botany, silviculture, and wood technology.

[Second year.
Professor COPELAND.
Assistant Professor FOXWORTHY.
Doctor GATES.

Botany III. Nutrition.—A thorough experimental study of the nutrition of plants; water, the ash constituents, nitrogen; photosynthesis, respiration, and the better-known metabolic processes. Prerequisite, Botany 2 and Chemistry 1.

[Elective.
Professor COPELAND.
Doctor GATES.

Botany IV. Plant Pathology.—A study of the fungus and bacterial diseases of plants, including their cause, prevention, and cure; investigation of the diseases of Philippine crops.

[Elective.
Professor BAKER.
Mr. CUZNER.

Botany X. Botanical Research.—The facilities of the college and the services of its staff are available to advanced students, or to others engaged in botanical investigation. According to the field, such work may be under the direction of Doctors Copeland, Foxworthy, or Gates. Every facility will be given to visiting botanists desiring to become acquainted with tropical plant life or to carry on investigations here.

AGRONOMY

CHARLES FULLER BAKER, M. A., Professor of Agronomy, and Chief of the Department of Agronomy.

EDWIN BINGHAM COPELAND, Ph. D., Professor of Plant Physiology.

HAROLD CUZNER, B. S., Assistant Professor of Agronomy.¹

JOHN CLINTON RUNDLES, Instructor in Agronomy.

INOCENCIO ELAYDA, B. S. A., Instructor in Agronomy, Farm Foreman.

¹ On leave.

The department of agronomy occupies three rooms in the temporary building of the college, and has under its direction the plant propagating house, the gardens, nurseries, orchards, and cultivated fields. It is provided with all tools and implements needed for the work of the farm or the practice of the students, and such special apparatus as sugar, starch, and feed mills. There are now growing several hundred varieties of plants of economic importance, on a scale ranging from a few individuals to plots of several hectares.

The practical training of the farmer is continuous throughout the course, except for the first year of the six-year course. Some of this training is given in other departments; as the use of garden tools in Botany II; the preparation and application of insecticides and the care of pumps in Entomology; and the general repair of implements, making of harrow teeth and plow shares, etc., in Agricultural Engineering. Operations incidental to the culture of particular crops are practiced when these crops are studied, as outlined in the description of courses below. Students are given instruction and practice at various times during the course, in:

- (a) Farm accounting.
- (b) The handling of labor.

Other practical work is distributed through the courses in Agronomy, as follows:

Agronomy I: (c) Work with hoe, rake, spade, and fork; cleaning of garden paths, drives, and walks; preparation of beds. (d) Work with Planet Junior hand tools. (Credit for (c) and (d) may be obtained in Botany II.) (e) Sharpening of all small edged tools. (f) Oiling, cleaning, and care of machine tools, including lawn mowers. (g) Preparation and handling of seed beds; pricking out of young plants in nursery beds and flats; setting out young plants. (h) Plowing, from the use of small plows with single animals to heavy moldboard and disk plows. (i) Machine harrowing, marking, and cultivating. (j) Broadcasting and planting with machine planters. (k) Harvesting and cleaning seed. (l) Management of compost and manure heaps.

Agronomy III: (m) Marcottage and making of cuttings and layers. (n) Mixing, and hand and machine application of fertilizers. (o) Planting young trees and moving older ones. (p) Tree and shrub pruning.

Agronomy IV or V: (q) Budding and grafting, including preparation of wax and tape. (r) Seed grading and selection. (s) Production of inbred, crossbred, and hybrid seed.

Agronomy I. Principles of Agriculture.—This course takes up climate and its relation to agriculture; the soil, its origin and structure, and methods of management and improvement; propagation of plants; pruning, and methods of combating disease. The lectures cover also the marketing of farm produce, and farm policy and management. Thorough work is given on maize and the forage crops of the Philippines. Students in this course are required to become familiar with agricultural implements and their use, and are given practice in propagating plants by seed, cutting, grafting, and budding.

[Third year.

Lectures: Mr. RUNDLES.

Field work: Mr. RUNDLES and Mr. ELAYDA.

Agronomy II. The Coconut and Fiber Plants.—More than half of the year is devoted to the study of the coconut, covering as much of its physiology as has direct agricultural value; its diseases and their treatment; all steps in its proper cultivation, harvesting, and preparation for market, in the Philippines and elsewhere; and the uses and value of the products. The college has more than 1,000 trees of various ages. The fiber plants are studied in the same way, but more briefly, especial attention being given to abacá. Prerequisite, Botany II and Chemistry I.

[Fourth year. Professor COPELAND.

Agronomy III. Farm Crops.—Sugar, tobacco, coffee, rubber, and some minor tropical crops will be taken up in succession, the treatment of each being similar to that of the coconut during the preceding year, but with more attention to selection and breeding.

[Fifth year. Professor BAKER.

Agronomy IV. Horticulture.—Completion of two of the following semestral courses is required for credit.

(a) The general principles of landscape gardening as a preparation to the student for the intelligent improvement of home or public grounds; a study of the principal herbs and woody plants suited to decorative use in the tropics.

(b) A study of methods of home and commercial gardening. The garden crops are taken up individually and studied with regard to their history, methods of improvement, planting, and cultivation.

(c) Cultural pomology. Thorough instruction and field drill on the methods of handling orchard crops.

[Elective. Assistant Professor CUZNER.

Agronomy V. Plant Breeding.—A study of the fundamental principles of plant breeding with full discussion of recent investigations and results. Abundant opportunities are offered for practical field work with the special tropical crops or in systematic pomology.

[Elective. Professor BAKER.

Agronomy X. Research.—The facilities of the department will be placed freely at the disposition of persons qualified to use them in investigations likely to promote the knowledge of tropical agronomy. Students choosing to present theses in this subject may select some minor crop, or some problem relating to a major one.

Professor BAKER.
Assistant Professor CUZNER.

THE FOUR-YEAR COURSE IN AGRICULTURE

The requirements in this course are:

For admission.—The completion of the high-school course, or its equivalent, including botany. (See p. 231.) If Botany is not presented for admission, the course in Botany I (see p. 237) must be taken without credit.

For graduation.—(a) A business knowledge of the Spanish language, ability to read scientific German (or French), and one year of general zoölogy. These requirements may be satisfied before or after admission to the college.

(b) Completion of the following courses: Botany 2; Agronomy 1, 2, 3, and 4 or 5; Rural Engineering 1; Chemistry 1 and 2; Economic Entomology; Animal Husbandry 1.

(c) Completion of two electives based on required courses.

(d) Presentation of a thesis representing a year's work on some agricultural problem.

For explanation of these courses, see the preceding pages. The following outline of the course is based on the assumption that the requirements in zoölogy and German are not satisfied before admission:

First year.	Second year.	Third year.	Fourth year.
Botany 2. German 1. Chemistry 1. Zoölogy 1.	Agronomy 1. German 2. Chemistry 2. Zoölogy 2.	Agronomy 2. Rural engineering 1. Agronomy 3. Animal husbandry 1.	Agronomy 4 or 5. Elective. Elective. Thesis.

DEPARTMENT OF FORESTRY (FOREST SCHOOL)

GEORGE PATRICK AHERN, LL. B., Professor of Forestry.

FRED WILLIAM FOXWORTHY, B. S., A. M., Ph. D., Assistant Professor of Dendrology.

DONALD MAXWELL MATTHEWS, A. B., M. S. F., Assistant Professor of Forest Management.

OLIVER FREDERICK BISHOP, Ph. B., M. F., Instructor in Dendrology.

MYRON DONALD KNAPP, A. B., M. S. F., Instructor in Forest Engineering.

ARTHUR FREDERICK FISCHER, C. E., M. F., Instructor in Forest Engineering.

EDWIN EMIL SCHNEIDER, B. S., Lecturer in Wood Technology.

MAURICIO JULIAN OTEYZA, M. F., Instructor in Silviculture.

In April, 1910, the Philippine Legislature passed an Act authorizing the Director of Forestry to appoint 20 forest pensionados and to construct temporary buildings for their use. This marked the beginning of the Forest School, which was first opened to students in June, 1910.

Nine cottages were constructed for the use of students, as well as a large mess hall and an administration building.

The grounds about the students' houses have been parked and a tennis court constructed. The recitations and laboratory work are conducted in the college buildings. Most of the field work in forestry subjects is carried on in the adjoining Maquiling Forest Reserve. This embraces the entire public forest on Mount Maquiling, including many of the principal forest types of the Philippines. Its proximity to the forest school makes it available for all kinds of field work necessary for a complete course in forestry, with the exception of steam logging and milling.

For this field work each class is taken to the seat of some extensive lumbering operation. During the 1913 vacation, a visit was made to the logging and lumbering plant of the Cadwallader-Gibson Lumber Company in Bataan.

The technical courses in forestry are given by instructors detailed, for the purpose, by the Bureau of Forestry. To provide for this work, the division of investigation of the Bureau has been transferred from Manila and located at the college.

Pensionados are appointed by the Director of Forestry on the recommendation of the Director of Education. Scholarships are restricted to students who have completed at least the second year of a high-school course. Pensionados can complete the ranger's course in two years, provided that they begin their work in April and complete the first year's work in Botany by June. Pensionados are given appointment in the Bureau of Forestry, without civil-service examination, upon completion of the ranger's course, and those who qualify by experience are

eligible for promotion. Pensionados receive a monthly allowance of ₱25 and traveling expenses to and from Los Baños. They are also provided with living quarters and with most of the books and other equipment needed in the courses. Meals in the mess hall cost approximately from ₱12 to ₱14 per month. Holders of scholarships are under contract to enter the employ of the Bureau of Forestry for as long a period as they shall have enjoyed the privileges of the scholarship.

Applicants for scholarships should write to the division superintendent who has jurisdiction over the high school in which they have received their training, requesting him to recommend them to the Director of Education. Notification of such action should be sent at the same time to the Director of Forestry, Manila. If their applications are approved by the Director of Education, he will certify their names to the Director of Forestry as eligible for appointment.

RANGER'S COURSE IN FORESTRY

The ranger's course in forestry was established in 1910. It is open to students who have completed two or more years of high-school work or its equivalent.

OUTLINE OF THE RANGER'S COURSE IN FORESTRY

Junior year:

- Botany 2A.
- Mathematics.
- Forest engineering I; first semester.
- Dendrology (Forest Botany).
- Physiography, soils, and climatology; first semester.
- Silviculture I; second semester.
- Forest engineering II; summer vacation.

Senior year:

- Wood technology; first semester.
- History, law, and procedure; second semester.
- Forest engineering III.
- Silviculture II.
- Forest management I.

COURSES OF INSTRUCTION

BOTANY

Botany 2A.—(Prerequisite Botany I.) A course designed specially for forestry students. The first half treats of the physiology of plants. The second half is devoted to the special and general anatomy of woody plants. The course is intended

to serve as a foundation for the following year's work in Wood Technology.

[Junior year.
Professor COPELAND.
Assistant Professor FOXWORTHY.
Doctor GATES.

MATHEMATICS

Mathematics 3. Plane Geometry and Trigonometry.—Students who have finished plane geometry before entering will take this course in the second semester only.

[Junior year.

FOREST ENGINEERING

Forest Engineering I. Elementary surveying and mapping.—The use of instruments, mechanical drawing, and lettering; topographic signs; map making; field problems in pacing, chaining and compass work.

[Junior year; first semester. Mr. BISHOP.

Forest Engineering II.—A four weeks' field trip in the forest to give drill in fundamentals of forest surveying, trail and camp construction, housing of field parties and generally to equip students to handle field parties.

[Junior year; summer term.
Assistant Professor MATTHEWS.
Mr. BISHOP.
Mr. KNAPP.

Forest Engineering III.—Lectures and recitations in engineering, mensuration, and utilization. Field practice in rough methods of leveling; plane table, topographic and boundary surveying; taking of trail notes, field sketching, etc.; camps, trail, bridge, and logging-slide location; trail and bridge construction. During a part of the months of February and March, the class will be taken to visit the plant of some one of the larger lumbering operations and given instruction in the more advanced methods of lumbering and logging. This trip will be supplemental to the utilization class work and a study of native logging on Mount Maquiling.

The field work in mensuration will be taken up in connection with forest management.

[Senior year. Mr. KNAPP.

PHYSIOGRAPHY, SOILS, AND CLIMATOLOGY

Lectures, illustrated locally in the field, on the great factors of physical environment, and on the processes molding the land forms which affect vegetation and soils; physiography and climatology of the Philippines.

[Junior year; first semester. Mr. BISHOP.

DENDROLOGY (FOREST BOTANY)

Prerequisite, Botany I.—The objects of this course are: (1) To become acquainted with the common woody plants in the forest; (2) to learn to recognize the principal species of trees that are producers of timber; (3) to learn to recognize the minor forest products, medicinal and poisonous plants; (4) to learn to recognize the more important families of woody plants by vegetative characters; and (5) to recognize broad plant groups and forest types. Frequent examinations are given, to test the students' ability to recognize the plants studied.

Bulletin No. 10, Bureau of Forestry, H. N. Whitford, is the text used.

Each student is given enough drill in the making of herbarium specimens to insure his knowing how to prepare such material when on field trips.

[Junior year.
Assistant Professor FOXWORTHY.
Mr. BISHOP.

SILVICULTURE I

Field work in planting and nursery work, in preparation for the work in Silviculture the following year.

[Junior year; second semester. Mr. OTEYZA.

SILVICULTURE II

Lectures.—The ecological factors upon which silviculture is based. The classification of the forests of the Philippines into types. The origin and development of second growth forests and silvicultural systems adapted to their management. Various systems of silviculture and their application to Philippine forests. Forest planting and nursery practice. Detailed consideration of the silvicultural characteristics of various timber species.

Field Work.—Field studies in forest description. Timber marking and the preparation of silvicultural management plans. Drill in the collection, care and germination of seed, seed testing; nursery practice; transplanting and reforestation.

[Senior year.
Assistant Professor MATTHEWS.
Mr. OTEYZA.

SILVICULTURE III

Special work in the application of silviculture to the various types and conditions of Philippine forests. Field work in the gathering of silvicultural data for a definite forest tract, to include a report outlining the system to be adopted, cost of operations, results, etc.

[Fourth year. Assistant Professor MATTHEWS.

WOOD TECHNOLOGY

Prerequisite Botany 2 A.—Laboratory studies of the structure of woods. Frequent examinations in the identification of different commercial woods. Attention is given to the physical, chemical, and mechanical properties of wood and to the durability of different woods under varying conditions. The minor forest products also receive some attention.

Mr. BISHOP.
Mr. SCHNEIDER.

HISTORY OF FORESTRY

A series of lectures on the history of forestry in Europe, America, and the Orient.

[Senior year; second semester. Professor AHERN.

LAW AND PROCEDURE

Lectures on forest law in various parts of the world and on the essentials of Philippine forest and land laws, accounting, records, and forms. Practise in the use of forms and field work to illustrate the application of methods of procedure.

[Senior year; second semester.
Assistant Professor MATTHEWS.
Mr. KNAPP.

FOREST MANAGEMENT I

Lectures.—Working plans and the application of forest surveys to them. Forest regulation. The administration and regulation of field and office work. Organization of the local forest force for protection and for the regulation of full use and cutting under license. Organization and administration of labor for various operations. Forest valuation.

Field Work.—The preparation of timber and topographical maps and, upon a basis of these, the preparation of a detailed working plan for a definite forest tract.

[Senior year.
Assistant Professor MATTHEWS.
Mr. KNAPP.

FOREST MANAGEMENT II

Forest valuation and advanced forest law. The preparation of a detailed working plan for a definite forest tract which shall contain specific directions for the plan of operations for the next ten years to include location of annual cuts, location of

proposed improvements; cost of operation and estimate of income.

[Fourth year. Assistant Professor MATTHEWS.]

COURSES LEADING TO DEGREE

Courses are offered leading to the degree of Bachelor of Science in Forestry. Students who have graduated from the Philippine high schools or who have equivalent training may receive the degree of Bachelor of Science in Forestry after four years' satisfactory work in residence at the school. High school graduates may also take the two-year ranger's course followed by two years of work in the Bureau of Forestry, with the approval of the Dean of the College, and a final year in residence at the school.

For those candidates for the degree who prefer four years in residence the required subjects are as follows:

FOUR-YEAR COURSE

First year:

Botany 2A (to which Botany I is prerequisite).
Mathematics III, trigonometry.
Chemistry.
One free elective.

Second year:

Forest engineering I; first semester.
Physiography, soils, and climatology; first semester.
Dendrology.
Physics.
Silviculture I; second semester.
Forest engineering II; summer vacation.

Third year:

Wood technology; first semester.
History, law, and procedure; second semester.
Silviculture II.
Forest Management I.
Forest Engineering III.

Fourth year:

Silviculture III.
Forest management II.
Thesis in one of above subjects.

For those who have completed the ranger's course and two years of field service in the Bureau of Forestry the work of the final year will be the same as that of the senior year of the four-year course.

Rangers taking this course will arrange with their instructors the nature of work to be done on the thesis before the beginning of the school year.

Students, College of Agriculture

- Abadilla, Francisco A., Catanauan, Tayabas.
 Abaya, Julian, Pagsanjan, La Laguna.
 Abrigo, Eugenio R., Tayabas, Tayabas.
 Acuña, Ramón A., Albay, Albay.
 Adduru, Marcelo, Tuguegarao, Cagayan.
 Adriano, Alfredo, Malolos, Bulacan.
 Africa, Emilio M., Lipa, Batangas.
 Agama, José, Orani, Bataan.
 Aganon, Lorenzo, Pura, Tarlac.
 Alcasid, Exequiel, Calamba, La Laguna.
 Aldaba, Vicente C., Malolos, Bulacan.
 Alejandro, Benigno, San Isidro, Nueva Ecija.
 Altamirano, Maximo, Lipa, Batangas.
 Ambrosio, Diosdado, Santa Cruz, La Laguna.
 Amos, Felipe, San Narciso, Zambales.
 Ancheta, Luis, San Quintin, Pangasinan.
 Angeles, Justo, Morong, Rizal.
 Antonio, Pedro D., San Quintin, Pangasinan.
 Apacible, Tomas, Tuy, Batangas.
 Aquino, Felipe, Alaminos, La Laguna.
 Aragon, Vicente B., Sto. Tomas, Aliaga, Nueva Ecija.
 Arcillas, Constancio, Bulacan, Bulacan.
 Ariño, Celestino, San Antonio, Zambales.
 Arit, Severino, Lopez, Tayabas.
 Asuncion, Isidoro, San Nicolas, Ilocos Norte.
 Asuncion, Severo, Balayan, Batangas.
 Avcilla, Mariano, Pateros, Rizal.
 Aurelio, Catalino G., Binalbagan, Occidental Negros.
 Bacomo, Pantaleon U., Puerto Princesa, Palawan.
 Bagui, Crispulo, Batangas, Batangas.
 Balague, Cornelio, Aringay, La Union.
 Baldemor, Julio, Paete, La Laguna.
 Baltazar, Alejandro C., San Mateo, Rizal.
 Banzon, Eustaquio, Balanga, Bataan.
 Barry, James B., Alilem, Amburayan, Mountain.
 Bautista, Alipio, Luna, La Union.
 Bautista, Basilio R., Montalban, Rizal.
 Bautista, Pantaleon, Urdaneta, Pangasinan.
 Bawan, Felix, Batangas, Batangas.
 Bayan, Raymundo L., Aliaga, Nueva Ecija.
 Bayla, Arsenio M., Silang, Cavite.
 Benemerito, Agapito, Bangar, La Union.
 Bernardo, Genaro, Aliaga, Nueva Ecija.
 Binag, Marcos, Cabagan Nuevo, Isabela.
 Bisocos, Moises B., Talisay, Occidental Negros.
 Cabanas, Juan, San Nicolas, Ilocos Norte.
 Cabel, Antonio, San Nicolas, Ilocos Norte.
 Cabrera, Emilio, Santo Niño, Aliaga, Nueva Ecija.
 Cagungun, Timoteo L., San Luis, Pampanga.
 Cagurangan, Alfonso, Tuguegarao, Cagayan.
 Calderon, Florentino, Tayug, Pangasinan.
 Calinngasan, Teofilo G., Lipa, Batangas.
 Camus, José S., Malabon, Rizal.
 Canonizado, Maximo P., San Antonio, Zambales.
 Capistrano, Severo M., Tanay, Rizal.
 Caravana, Victoriano, C., Calamba, La Laguna.
 Cardona, Francisco T., Gerona, Tarlac.
 Carillo, Ramón G., Tarlac, Tarlac.
 Casiano, Domingo C., Agno, Pangasinan.
 Castillo, Mariano, Pasuquin, Ilocos Norte.

Students, College of Agriculture—Continued

- Castillo, Vicente, Iba, Zambales.
 Castro, Tomas de, B. A., Polo, Bulacan.
 Catalan, Juan, Iloilo, Iloilo.
 Catalan, Nemesio, Bago, Occidental Negros.
 Catambay, Atanasio B., Tanay, Rizal.
 Causing, Mariano, Bantayan, Cebu.
 Ceballos, Vicente, Pototan, Iloilo.
 Cenabre, Agapito L., Pamplona, Cagayan.
 Clemente, Leopoldo S., Paombong, Bulacan.
 Collado, Esteban, Ballesteros, Cagayan.
 Coloma, Maximo S., Aliaga, Nueva Ecija.
 Cometa, Jose, Cajidiocan, Romblon.
 Constantino, Agripino, Morong, Rizal.
 Constantino, Marcelino, Morong, Rizal.
 Consunji, Gaudencio, Samal, Bataan.
 Corpus, Teodoro D., Naguilian, La Union.
 Cos, Timoteo, Lobo, Batangas.
 Cosico, Doroteo, Alaminos, La Laguna.
 Crisostomo, Marcelo, A. B., Hagonoy, Bulacan.
 Cruz, Adriano, Morong, Rizal.
 Cruz, Florentino, Montalban, Rizal.
 Cui, José Maria, A. B., Cebu, Cebu.
 Dacanay, José Q., A. B., Binalonan, Pangasinan.
 Dacanay, Placido, Bacnotan, La Union.
 Damo, Ambrosio, San Nicolas, Ilocos Norte.
 Dawis, Vicente M., Taal, Batangas.
 Derobles, Lorenzo, Tuy, Batangas.
 Domanguing, Victoriano F., Naguilian, La Union.
 Dosado, José, Pototan, Iloilo.
 Duran, Jesus O., Nabua, Camarines.
 Edmilao, Emeterio, Cagayan, Misamis.
 Edrozo, Leon, Vintar, Ilocos Norte.
 Egay, Simon P., Gigaquit, Surigao.
 Elviña, Andres, Aliaga, Nueva Ecija.
 Enriquez, Mariano L., Bocaue, Bulacan.
 Esguerra, José P., Tanay, Rizal.
 Esguerra, Juan P., Aliaga, Nueva Ecija.
 Espino, Rafael B., Samal, Bataan.
 Estalilla, Hilarion, Aringay, La Union.
 Evaristo, Gaudencio L., Iba, Zambales.
 Fajatin, Felipe, Vigan, Ilocos Sur.
 Ferrer, Federico O., A. B., San Fernando, Pampanga.
 Festin, Santiago, Odiongan, Romblon.
 Festin, Simplicio, Odiongan, Romblon.
 Flores, Braulio L., Lipa, Batangas.
 Flores, Doroteo M., Dumaguete, Oriental Negros.
 Flores, Simeon S., Dumaguete, Oriental Negros.
 Franco, Leon C., San Luis, Pampanga.
 Fronda, Francisco M., Aliaga, Nueva Ecija.
 Galang, Francisco G., San Simon, Pampanga.
 Gamelo, Augusto, Malabon, Rizal.
 Gañgan, Pedro S., Ilagan, Isabela.
 Garcia, Claudio P., Naguilian, La Union.
 Garcia, Gregorio S., Silang, Cavite.
 Ghofulpo, Teodorico, Binalbagan, Occidental Negros.
 Goco, Arsenio A., Malabon, Rizal.
 Gonzalez, Joaquin J., Apalit, Pampanga.
 Grageda, Gregorio, Camalig, Albay.
 Guerrero, Carlos, Lapog, Ilocos Sur.
 Guerrero, Joaquin, Agaña, Island of Guam.
 Gungab, Amando, Aliaga, Nueva Ecija.
 Gungab, José N., Aliaga, Nueva Ecija.
 Gutierrez, Felix, Tanay, Rizal.
 Gutierrez, Mariano, Laoag, Ilocos Norte.
 Gusman, Felix J., Gapan, Nueva Ecija.

Students, College of Agriculture—Continued

- Guzman, Gonzalo, Mexico, Pampanga.
 Harder, Tomas D., Iloilo, Iloilo.
 Henson, Yldefonso, San Fernando, Pampanga.
 Hernandez, Nemesio, Paombong, Bulacan.
 Hiquiana, Gaudencio C., San Jacinto, Pangasinan.
 Hsia Shi Hsi, B. S., Nanking, China.
 Ibarra, Anastacio, R., Sto. Niño, Aliaga, Nueva Ecija.
 Ilustre, Pedro, Batangas, Batangas.
 Imatong, Severino, San Fabian, Pangasinan.
 Jacalan, Feliciano S., San Juan, La Union.
 Jamias, Julio, Castillejos, Zambales.
 Jurado, Mariano, Magsingal, Ilocos Sur.
 Kapuno, Filemon, Danao, Cebu.
 Labayen, Segundo D., Talisay, Occidental Negros.
 Labitag, Gregorio G., Sorsogon, Sorsogon.
 Lago, Francisco P., Lopez, Tayabas.
 Laparan, Amando, Lian, Batangas.
 Larracas, Ramón, Boac, Marinduque.
 Laxamana, José G., San Luis, Pampanga.
 Layosa, Pedro, Lian, Batangas.
 Lazaro, José B., Bulacan, Bulacan.
 Lazo, Honesto, Bulacan, Bulacan.
 Leon, José de, Vigan, Ilocos Sur.
 Leon, Pedro de, Santa Cruz, La Laguna.
 Lindayag, Gaspar, Paombong, Bulacan.
 Lisañgan, Sabino, Gapan, Nueva Ecija.
 Lipayon, Anastacio C., Tanauan, Leyte.
 Li Shen Tuan, Szechuan, China.
 Lizaso, Juan G., Barás, Catanduanes, Albay.
 Lopez, Jesus V., Tacloban, Leyte.
 Lopez, Mariano C., Orion, Bataan.
 Luistro, Fernando D., Lipa, Batangas.
 Luna, Apolonio, Ballesteros, Cagayan.
 Mabesa, Calixto, Hinigaran, Occidental Negros.
 Macasaet, Valentin, Lipa, Batangas.
 Maceda, Felix M., Pila, La Laguna.
 Madarang, Felix V., San Antonio, Zambales.
 Madarang, Pedro C., San Antonio, Zambales.
 Manahan, Luis F., San Mateo, Rizal.
 Manipol, Felix S., Imus, Cavite.
 Manuel, Zacarias R., San Nicolas, Ilocos Norte.
 Manzanilla, Canuto E., Los Baños, La Laguna.
 Mañalac, R. B., San Roque, Cavite.
 Mapanao, Celso D., Aringay, La Union.
 Mariano, José G., Bigaa, Bulacan.
 Mariano, Macario A., Asingan, Pangasinan.
 Marquez, Francisco D., Lemery, Batangas.
 Martinez, Antonio A., Libog, Albay.
 Masonsong, Manuel K., Lipa, Batangas.
 Mayor, Pacifico F., Romblon, Capiz.
 Medalla, Mariano, Santo Tomas, Batangas.
 Medrano, Casiano, Lipa, Batangas.
 Medrano, Victorino, Lipa, Batangas.
 Mejia, Antonio C., San Quintin, Pangasinan.
 Mejia, Miguel E., San Quintin, Pangasinan.
 Mendiola, Ignacio, Palo, Leyte.
 Mendiola, Nemesio, Angono, Rizal.
 Mendoza, Deogracias, Obando, Bulacan.
 Mendoza, Leoncio, Santa Maria, Bulacan.
 Mendoza, Leopoldo G., Manila.
 Merino, Gonzalo, Puerto Princesa, Palawan.
 Micu, Ramon A., Asingan, Pangasinan.
 Miraflores, José C., Victorias, Occidental Negros.
 Miras, Gregorio, Albay, Albay.
 Mirasol, José J., Silay, Occidental Negros.

Students, College of Agriculture—Continued

- Montellano, Pedro, Boac, Marinduque.
- Narabal, Tiburcio, San Isidro, Pangasinan.
- Natividad, Peregrin, Zamboanga.
- Navarro, Mariano, Malabon, Rizal.
- Navera, Julio, Camalig, Albay.
- Nisce, Teofilo, Balaoan, La Union.
- Noguera, José, Cavite, Cavite.
- Ocampo, Luciano de, Calamba, La Laguna.
- Ocfemia, Gerardo O., Guinobatan, Albay.
- Octubre, Francisco P., San Quintin, Pangasinan.
- Odejar, Ambrosio, Los Baños, La Laguna.
- Odejar, Catalino, Nagcarlan, La Laguna.
- Oliva, Ramon V., Nasugbu, Batangas.
- Oliveros, Severo V., Cavinti, La Laguna.
- Orendain, Juan, Sibalom, Antique.
- Osorio, Francisco, Cavite, Cavite.
- Otanes, Faustino Q., Umingan, Pangasinan.
- Padolina, Felipe B., Peñaranda, Nueva Ecija.
- Padolina, Mariano, Peñaranda, Nueva Ecija.
- Padua, Bernardo, Gapan, Nueva Ecija.
- Padua, José J., Sta. Cruz, Ilocos Sur.
- Paguirigan, Domingo B., Ilagan, Isabela.
- Palafox, Gaudencio, San Miguel, Ilocos Sur.
- Palafox, Serapio, San Nicolas, Ilocos Norte.
- Pañaniban, Elias, Bocaue, Bulacan.
- Pascual, Justo M., La Paz, Tarlac.
- Paulican, Cenon, Tanay, Rizal.
- Paz, Alfonso de la, Subic, Zambales.
- Peña, Pastor de la, Urdaneta, Pangasinan.
- Peñas, Maximo, San José, Camarines.
- Peralta, Ceferino de, Dingras, Ilocos Norte.
- Pereña, Sofronio, San Jose de Lagunoy, Camarines.
- Perez, Domingo D., San Carlos, Pangasinan.
- Phasis, C. Jose, Tiwi, Albay.
- Porcioncula, Pio M., Tanay, Rizal.
- Quisumbing, Eduardo, Los Baños, La Laguna.
- Quisumbing, Francisco, Los Baños, La Laguna.
- Raymundo, Mariano B., Morong, Rizal.
- Razon, Maximiano S., Tarlac, Tarlac.
- Reyes, Felix P., San Jacinto, Pangasinan.
- Reyes, Leopoldo, San Pablo, La Laguna.
- Reyes, Rufo, Siniloan, La Laguna.
- Reyes, Simón A., Lezo, Capiz.
- Riego de Dios, Gorgonio, San Roque, Cavite.
- Romero, Leon M., Tayabas, Tayabas.
- Roque, Tomas N., San Fernando, Pampanga.
- Sabado, Raymundo, Naguilian, La Union.
- Sablan, Eladio, Pagsanjan, La Laguna.
- Sainz, Geronimo, Talavera, Nueva Ecija.
- Salanga, Angel, San Fernando, La Union.
- Salas, Casiano, Hagna, Bohol.
- Salas, Jose, Agaña, Guam.
- Samonte, Antonio, San Roque, Cavite.
- Samonte, Claro C., Tanáy, Rizal.
- Sandique, Julian, Binmaley, Pangasinan.
- San Miguel, Lucio, Morong, Rizal.
- Santos, Adriano V., Manila.
- Santos, Alfredo, A. B., Malolos, Bulacan.
- Santos, Francisco B., San Mateo, Rizal.
- Sarao, Felix, Imus, Cavite.
- Sarmiento, Roman O., Batangas, Batangas.
- Silayan, Hilarion, Binangonan, Rizal.
- Soong Ding Moo, Shanghai, China.
- Sulit, Carlos, Santa Cruz, La Laguna.

Students, College of Agriculture—Continued

Sulit, Victor, Santa Cruz, La Laguna.	Vicencio, Arsenio, Arayat, Panganga.
Tabios, Guillermo B., San Nicolas, Ilocos Norte.	Victorio, Urbano R., Malabon, Rizal.
Tansioko, Crispino M., Victoria, Tarlac.	Victorio, Isidro, Pasig, Rizal.
Tañedo, Gregorio M., A. B., Tarlac, Tarlac.	Villadolid, Deogracias B., Nasugbu, Batangas.
Tapang, Gisberto, A. B., Malolos, Bulacan.	Villalon, Luis C., Aringay, La Union.
Tecson, Teodoro, San Miguel, Bulacan.	Villanueva, Crispin, Castillejos, Zambales.
Teodoro, Anastacio L., Santa Cruz, La Laguna.	Villanueva, Emeterio B., Muñoz, Nueva Ecija.
Teodoro, Nicanor G., Santa Cruz, La Laguna.	Villanueva, Probo, Numancia, Capiz.
Tirona, José, Imus, Cavite.	Villaraza, Mariano, Majayjay, La Laguna.
Tocmo, Bernardo C., Corella, Bohol.	Villavicencio, Vitaliano, Calapan, Mindoro.
Tomeldan, Santiago E., Binalonan, Pangasinan.	Villyar, Paul A., Magarao, Camarines.
Toquero, Aniceto G., Santa Lucia, Ilocos Sur.	Vista, Tomas I., Nagcarlan, La Laguna.
Torralba, Domingo, Tagbilaran, Bohol.	Yap, German G., Jagna, Bohol.
Tuason, Dionisio, Orion, Bataan.	Yap, Severo, Jagna, Bohol.
Uichanco, Leopoldo B., Calamba, La Laguna.	Ysidro, Rufino, Pasay, Rizal.
Valderrama, Felipe, Balincaguin, Pangasinan.	Zabella, Gaudencio, Tayabas, Tayabas.
Valdez, Macario B., Cabagan Nuevo, Isabela.	Zulaybar, Eutiquio, Lilio, La Laguna.
Valenciano, Antonio, Camalig, Albay.	
Vales, Braulio, Manila.	
Veles, Blas C., Cagayan, Misamis.	

Special Students

Copeland, Herbert F., Los Baños, La Laguna.
Francia, Hilario, Pagsanjan, La Laguna.
Yñiguez, Alfredo V., Malolos, Bulacan.

THE UNIVERSITY OF THE PHILIPPINES

THE COLLEGE OF VETERINARY SCIENCE

FOURTH ANNUAL ANNOUNCEMENT AND CATALOGUE

Faculty of the College of Veterinary Science

MURRAY BARTLETT,
President of the University.

ARCHIBALD ROBINSON WARD, B. S. A., D. V. M.,
Dean of the College of Veterinary Science,
Professor of Preventive Veterinary Medicine.

BOWMAN CORNING CROWELL, A. B., M. D., C. M.,
Associate Professor of Pathology and Bacteriology.

WILLIAM JOSEPH COLBERT, A. B.,
Associate Professor of Mathematics.

HARRY DRAKE GIBBS, B. S.,
Associate Professor of Chemistry.

ROBERT BANKS GIBSON, Ph. B., Ph. D.,
Associate Professor of Physiology.

ELMER DREW MERRILL, B. S., M. S.,
Associate Professor of Botany.

JAMES REMUS WRIGHT, B. S., Ph. D.,
Associate Professor of Physics.

ALVIN BROERMAN, D. V. M.,
Assistant Professor of Veterinary Medicine.

ANDREW GROVER DU MEZ, Ph. G., B. S., M. S.,
Assistant Professor of Pharmacology.

EUSTACE S. D. MERCHANT, D. V. M.,
Assistant Professor of Veterinary Medicine.

DONALD BRAMPTON PALMER, D. V. M.,
Assistant Professor of Veterinary Anatomy.

MARIANO VIVENCIO DEL ROSARIO, Ph. D., M. S.,
Assistant Professor of Chemistry.

VICTOR BUENCAMINO, D. V. M.,
Instructor in Veterinary Surgery.

ROY WALLACE HAMMACK, B. A., M. D.,
Instructor in Bacteriology and Pathology.

LECTURERS ON SPECIAL TOPICS¹

WILLIAM HUTCHINS BOYNTON, D. V. M.,
Pathologist, Lecturer on Pathology and Clinical Microscope.

MAURICE BRUIN MITZMAIN, B. S., M. S.,
Veterinary Entomologist, Lecturer on Veterinary Entomology.

STANTON YOUNGBERG, D. V. M.,
Supervising Veterinarian, Lecturer on Veterinary Jurisprudence.

RAYMOND WALLACE NEWCOMB, D. V. M.,
Lecturer on Meat Inspection.

¹ From the staff of the Bureau of Agriculture, Government of the Philippine Islands.

COLLEGE OF VETERINARY SCIENCE

HISTORY

The College of Veterinary Science derives its origin from the law founding the University of the Philippines, enacted June 18, 1908, by the First Philippine Legislature, in special session. The first session of the college began in June, 1910.

OBJECTS OF THE INSTITUTION

The enormous losses in the Philippine Islands from diseases of live stock prove the necessity of having educated men to cope with the exceptional difficulties encountered in fighting these diseases. A century ago Europe was stimulated by the ravages of rinderpest to establish the first veterinary colleges enjoying Government aid. The same force has now been exerted in the Philippine Islands. The prosperity of these Islands is dependent upon the prosperity of agriculture, and this in turn is conditional upon the presence of a large body of well-trained men capable of meeting the problem of animal diseases.

While rinderpest, a disease of bovines, is now occupying special attention, the combating of surra in horses is of no less importance, and nowhere in the world are there more opportunities for a comparative study of the various diseases of live stock. At present there are only seven graduate Filipino veterinarians and but few private practitioners of veterinary medicine in the Islands. The First Philippine Legislature displayed wise foresight in providing opportunity for Filipinos to become trained in a profession having a vital relation to the prosperity of the country.

LOCATION AND BUILDINGS

The buildings of the College of Veterinary Science are situated at the corner of Tayuman Street and Rizal Avenue, adjoining the San Lazaro Hospital. The group consists of a two-story building containing the faculty offices, classrooms, and anatomical laboratory; large sheds containing single and box stalls, and

a suitable building containing an operating table and a set of stocks for operating on large animals, together with a small building for use as a small-animal clinic. In addition to these buildings there is a small stable, properly screened, in which cases of an infectious nature are kept. Additional laboratory instruction in the allied sciences is given at the College of Medicine and Surgery.

ENTRANCE REQUIREMENTS

Candidates for admission to this college must comply with the requirements of the University of the Philippines. (See p. 35.)

EXAMINATIONS

At the end of each semester, or upon the completion of each subject, there will be an examination, and examinations will be held at such other times during the semester as the instructor of any course may deem necessary.

Promotion from one class to another shall be dependent on the vote of the faculty.

SCHOLARSHIPS

Twenty scholarships in the College of Veterinary Science were established by Act No. 2302 of the Third Philippine Legislature. Applications for these scholarships must be indorsed by the Director of Education.

REGISTRATION AND RESIDENCE

The college year is nine months long and is divided into two semesters.

All students must comply with the registration requirements of the University of the Philippines, as outlined on page 45.

Residence in Manila is required of all students, and any change in address must be reported at the office of the Dean.

REQUIREMENTS FOR GRADUATION

In order to receive the degree of Doctor of Veterinary Medicine (D. V. M.) the candidates must have successfully completed the prescribed five-year course to the satisfaction of the faculty and must be recommended to the Board of Regents by the University Council.

*Outline of course***FIRST YEAR**

First semester:	Units.	Second semester:	Units.
Chemistry 1	3	Chemistry 1	3
Physics	3	Physics	3
English 1 (optional)	3	English 1 (optional)	3
Zoölogy	3	Zoölogy 1	3
Mathematics 9	3	Anatomy	3
Osteology	3	Botany 1	3
Total	18	Total	18

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Chemistry 2	3	Chemistry 2	3
French 1 (optional)	3	French 1 (optional)	3
Histology	3	Embryology	3
Anatomy	5	Anatomy	5
Language of medicine	1	Chemistry 9	3
Chemistry 9	3	Total	17
Total	18		

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Anatomy	5	Bacteriology	5
General pathology	6	Preventive medicine	1
Preventive medicine	1	Animal husbandry	2
Animal husbandry	2	Physiology, veterinary	3
Physiology, veterinary	3	Pharmacology 3	5
Total	17	Total	16

FOURTH YEAR

First semester:	Units.	Second semester:	Units.
General Surgery	4	Small animal diseases	2
Medicine	3	Obstetrics	4
Clinical diagnosis	2	Medicine	3
Medical entomology	2	Clinical diagnosis	2
Clinics	5	Jurisprudence	1
Materia medica	2	Clinics	5
Total	18	Total	17

FIFTH YEAR

First semester:	Units.	Second semester:	Units.
Regional surgery	2	Regional surgery	2
Surgical exercises	1	Surgical exercises	1
Medicine	3	Medicine	3
Horseshoeing	2	Ophthalmology	1
Special pathology	2	Therapeutics	2
Clinics	5	Clinics	5
Milk inspection	2	Meat inspection	2
Total	17	Total	16

*Students in the College of Veterinary Science 1913-14***FIRST YEAR STUDENTS**

Alano, Segundo.
 Albano, Oricolo F.
 Diaz, Vicente.
 Gimenez, Teodorico.
 Gomez, Francisco.

Lizardo, Claro.
 Montemayor, Santiago.
 Paras, Conrado.
 Polintan, Ricardo.
 Tubangui, Marcos A.

Students in the College of Veterinary Science 1913-14—Continued

SECOND YEAR STUDENTS

David, Juan C.	Rivadelo, Felipe.
Generoso, Juan D.	Rotea, Santiago.
Jardiniano, Federico M.	Sales, Pedro S.
Karganilla, Baltazar.	Sumulong, Manuel.

THIRD YEAR STUDENTS

Dumlao, Alejandro.	San Agustin, Gregorio.
Montellano, Isidoro.	Sanson, Emilio.
Panganiban, Crisanto.	

FOURTH YEAR STUDENTS

Patdu, Ildefonso.	Topacio, Teodulo, B. S.
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FIFTH YEAR STUDENTS

Gomez, Angel K.	Gison, Ambrosio, B. S.
Lecaros, Alfonso.	Peralta, Bernardo.
Roberts, William Miller, M. D.	

SPECIAL STUDENT

Antonio, Luis.

THE UNIVERSITY OF THE PHILIPPINES

THE COLLEGE OF ENGINEERING

FOURTH ANNUAL ANNOUNCEMENT AND CATALOGUE

Faculty of the College of Engineering

MURRAY BARTLETT,
President of the University.

CLARENCE G. WRENTMORE, C. E.,
Professor of Engineering, Dean of the College of Engineering.

AMASA S. CROSSFIELD, LL. B., LL. M.,
Professorial Lecturer on Contracts.

WILLIAM JOSEPH COLBERT, B. A.,
Associate Professor of Mathematics.

DEAN SPRUILL FANSLER, M. A., Ph. D.,
Associate Professor of English.

HARRY DRAKE GIBBS, B. S.,
Associate Professor of Chemistry.

LAWRENCE EDMONDS GRIFFIN, Ph. D.,
Associate Professor of Zoology.

JAMES REMUS WRIGHT, Ph. D.,
Associate Professor of Physics.

WALTER CHARLES REIBLING, Ch. E.,
Associate Professor of Engineering.

HERMAN WHITE REYNOLDS, M. E.,
Associate Professor of Engineering.

RHEINART PARKER COWLES, Ph. D.,
Assistant Professor of Zoology.

ALEXANDER SARKIS GALAJIKIAN, B. A.,
Assistant Professor of Mathematics.

OSCAR FRANKLIN SMITH, B. S.,
Assistant Professor of Physics.

RANDALL ADAMS ROWLEY, B. S.,
Assistant Professor of Geology.

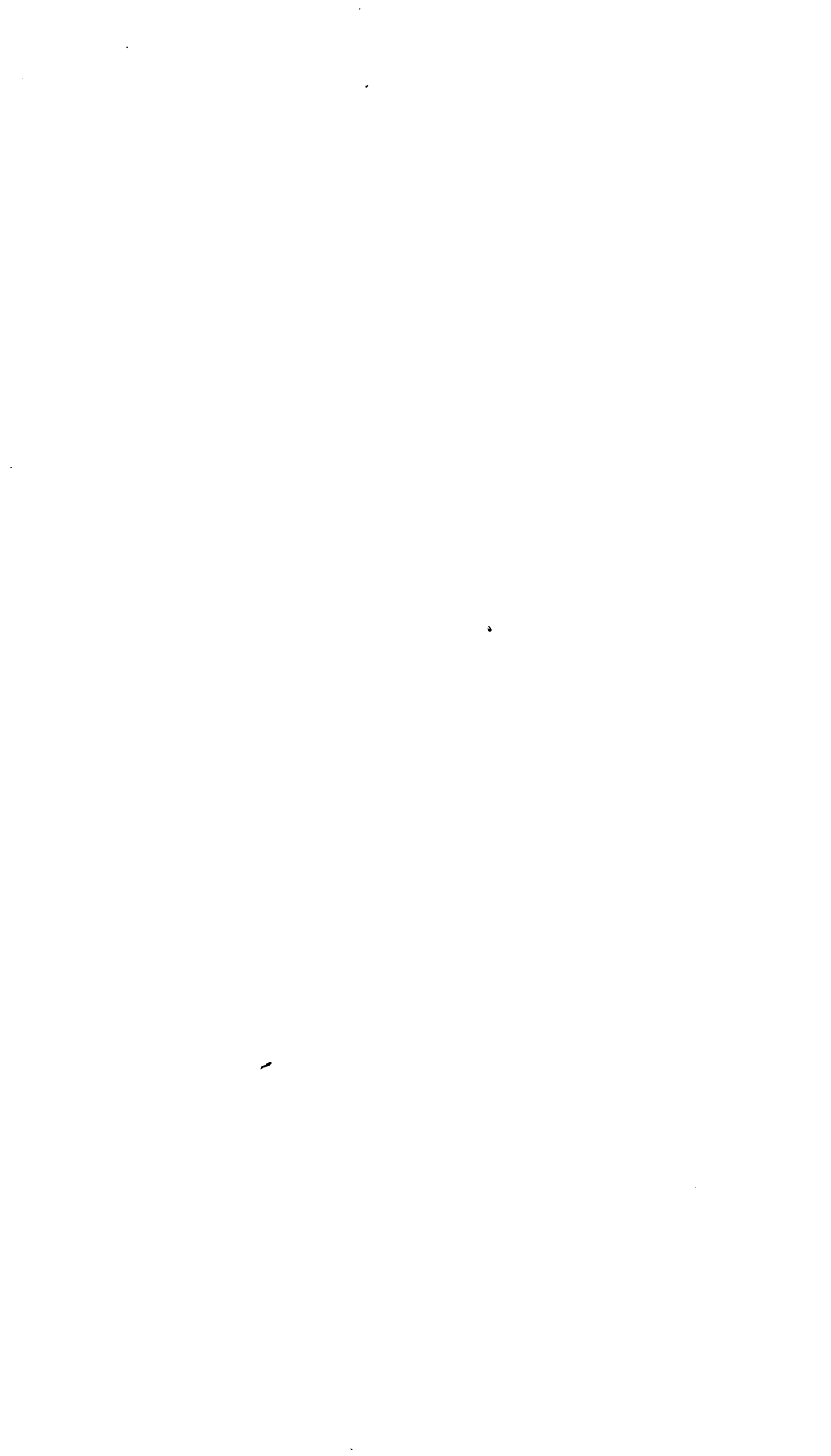
OSWALD HANCE BLACKWOOD, B. A.,
Instructor in Physics.

AMBROSIO MAGSAYSAY, C. E.,
Instructor in Drawing.

SHIRLEY ELMER ROBERTS, B. A.,
Instructor in Mathematics.

EDWIN LEROY DRIGGS, C. E.,
Instructor in Surveying and Physics.

PILAR HIDALGO, B. A.,
Instructor in Mathematics.



COLLEGE OF ENGINEERING

HISTORY AND GENERAL INFORMATION

The College of Engineering was opened, and instruction in the first year of the civil engineering course was begun on June 13, 1910. Graduates of four-year high-school courses were admitted at that time to the first year of the civil engineering course, which course was to consist of five years of study.

On January 31, 1911, the Board of Regents decided to require two years of college work as a preparation for the engineering course, and changed the latter to consist of four years of professional studies.

While a six-year course will fit a student for the profession much better than one of five years, the demand for a shorter course has been so pronounced that on January 9, 1914, the Board of Regents adopted a course of five years, leading to the degree of B. S. in Civil Engineering on the completion of four years' work and of M. S. in Civil Engineering upon completion of five years' work. At the same time the six-year course was rearranged so that the last three years in both courses would be identical.

Students taking the five-year course will be registered at once in the College of Engineering, while those taking the six-year course will be registered for the first two years in the College of Liberal Arts, pursuing the course in Preparatory Engineering, and thereafter in the College of Engineering.

The additional year of the six-year course is devoted to broadening the student's foundation in cultural and general subjects, and the schedule for the first two years covers the requirements for the degree of B. A. In the six-year course, therefore, the student may obtain the degree of B. A. at the end of two years, of B. S. (C. E.) at the end of five years, and of M. S. (C. E.) at the end of six years. It is recommended that the student take this course if he is financially able to do so.

LABORATORY FACILITIES

The equipment in the laboratory of physics is being steadily increased, and the courses for professional students are arranged

with special reference to their relation to the more advanced technical subjects.

For medical students, especial attention is given to light and current electricity; while for students of engineering, emphasis is laid upon mechanics, heat, and electricity. For undergraduates the facilities for instruction are on a par with those of similar institutions in the United States.

Shop training is given in the School of Arts and Trades where the equipment is in every respect of the best and most complete description.

For cement testing students are admitted to the cement-testing laboratories of the Bureau of Science in which hundreds of thousands of barrels are tested annually and where they have the advantage of instruction from experts in this line, as well as of observation of methods used and results obtained in a laboratory operating on a large commercial scale. The importance of this training in the Philippines, where, because of climatic and seismic conditions, cement plays so large a part among the materials of construction, cannot be over estimated. For the testing of other materials of construction a 200,000-pound Olsen screw testing machine is available, also a complete equipment for testing road materials.

SURVEYING

Only the best quality of instruments have been selected for the work in surveying, and the supply is sufficient to give every student a thorough training in field work. During the college year each student becomes familiar with and fairly proficient in the use of the tape, rod, level, transit, and camera-theodolite; while during the vacation field work he fills every position in actual field parties on railroad location and construction; staking cross sections; traversing, topographic, triangulation, and hydrographic surveys; and at the same time is drilled in the plotting and computation connected with his work.

ENTRANCE REQUIREMENTS

The entrance requirements to the College of Engineering include in mathematics an additional half unit in solid geometry, the total number of units required being $15\frac{1}{2}$. For detailed information regarding entrance requirements see pages 35 to 49, inclusive.

COURSES OF STUDY

The course of study leading to the degree of Bachelor of Science in Civil Engineering is as follows:

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Mathematics 6	4	Mathematics 6	4
English 1	3	English 1	3
Shop. Woodwork	3	Spanish	3
Drawing 1. Elementary mechanical..	3	Drawing 2. Descriptive Geometry.....	6
Spanish	3		
Total	16	Total	16

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Mathematics 7	6	Mathematics 7	6
Physics 2E	3	Physics 2E	3
Chemistry 1	3	Chemistry 1	3
Shop. Forging	4	Shop. Machine work.....	4
Total	16	Total	16

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Mathematics 6	6	Civil Engineering 1. Structural me-	
Physics 3	3	chanics	5
Chemistry 3	3	Physics 4	3
Surveying 1. Field work, computa-		Mineralogy, elementary	3
tion	4	Civil Engineering 2. Cement testing..	2
Total	16	Surveying 2. Lectures, field work.....	4
		Total	17

Vacation term, surveying work in camp (Surveying 3), 3 units.

FOURTH YEAR

First semester:	Units.	Second semester:	Units.
Civil Engineering 4. Theory of struc-		Civil Engineering 9a. Masonry, foun-	
tures	3	dations	3
Civil Engineering 7. Design of struc-		Biology (zoölogy 3).....	5
tures	5	Civil Engineering 10. Hydraulics.....	4
Geology	3	Accounting	2
Civil Engineering. Kinematics and		Civil Engineering 12a. Streets and	
statics of mechanics.....	5	roads	2
Civil Engineering. Testing materials	2	Total	16
Total	18		

The following additional year will lead to the degree of Master of Science in Civil Engineering:

FIFTH YEAR

First semester:	Units.	Second semester:	Units.
Civil Engineering 9b. Masonry and		Civil Engineering 8. Design of struc-	
foundations, continued	2	tures	3
Civil Engineering 12b. Sewage, gar-		Civil Engineering 11. Irrigation.....	5
bage, water supply.....	3	Civil Engineering 16. Electrical ma-	
Civil Engineering 5. Theory of struc-		chinery	4
tures, continued	5	English technical reading and re-	
Civil Engineering 14. Heat engines....	5	ports	3
Law 3. Elementary contracts.....	2	Law 3. Contracts.....	2
Total	17	Total	17

THE SIX-YEAR COURSE

For the first two years of this course the student is registered in the College of Liberal Arts, where he will pursue the Preparatory Engineering Course as outlined on page 90. Upon satisfactory completion of that course the degree of B. A. will be conferred and the student may then be admitted to the College of Engineering. During the first year in the College of Engineering he will pursue the following course:

First semester:	Units.	Second semester:	Units.
French or German.....	3	French or German.....	3
Chemistry	3	Chemistry	3
Shop. Forging	4	Shop. Machine work.....	4
English	3	English	3
History or Philosophy	3	Sociology	3
Total	16	Total	16

NOTE.—The student may elect either French or German, but will be required to complete two years work in the language elected.

The fourth, fifth, and sixth years of this course are the same as the third, fourth, and fifth years, respectively, of the five-year course.

The degree of Bachelor of Science in Civil Engineering will be conferred at the conclusion of five years of study and the degree of Master of Science in Civil Engineering, at the completion of the sixth year.

Students in the College of Engineering 1913-14

Alcantara, Gregorio, Batangas, Batangas.	Guanio, Domingo T., Gapan, Nueva Ecija.
Clemente, Amando, Manila.	Lava, Vicente, Bulacan, Bulacan.
Clemente, Hilario, Paombong, Bulacan.	Nostratis, Ricardo, San Francisco de Malabon, Cavite.
Corcuera, Aurelio L., Manila.	Tan, Vidal A., San Fernando, Pangasinana.
Cruz, Mamerto, San Mateo, Rizal.	Villegas, Arsenio M., Manila.
Fernandez, Severino, Manila.	
Gochoco, Jacinto, Cebu, Cebu.	

THE UNIVERSITY OF THE PHILIPPINES

THE COLLEGE OF LAW

FOURTH ANNUAL ANNOUNCEMENT AND CATALOGUE



Faculty of the College of Law

MURRAY BARTLETT,
President of the University.

GEORGE A. MALCOLM, B. A., LL. B.,
Lecturer on Law, Dean of the College of Law.

ERNEST BANCROFT CONANT, B. A., LL. B.,
Professor of Law.

AMASA S. CROSSFIELD, LL. B., LL. M.,
Professorial Lecturer on Contracts.

CHARLES SUMNER LOBINGIER, Ph. D., LL. M.,¹
Professorial Lecturer on Civil Law.

ADAM C. CARSON, LL. B.,
Professorial Lecturer on International Law.

WASHINGTON L. GOLDSBOROUGH, LL. B.,
Professorial Lecturer on Civil Procedure.

CLYDE A. DeWITT, LL. B.,
Lecturer on Law.

ANTONIO VILLAREAL,
Lecturer on Law.

JOSE A. SANTOS, LL. B., LL. M.,
Lecturer on Law.

QUINTIN PAREDES, LL. B.,
Lecturer on Law.

JORGE BOCOBO, LL. B.,
Instructor in Law.

SERAFIN P. HILADO, LL. B.,
Instructor in Law, Acting Secretary, Law Faculty.

SPECIAL LECTURERS

IGNACIO VILLAMOR, B. A., M. A., LL. M.,
Lecturer on Elections.

RAFAEL DEL PAN, B. A., LL. M., LL. D.,
Lecturer on Penology.

FRANCISCO ORTIGAS, B. A., LL. M.,
Lecturer on Mortgages and Obligations.

FRANK B. INGERSOLL, B. A.,
Lecturer on Mining Law.

JUAN SUMULONG, LL. B.,
Lecturer on Legal Ethics.

JOHN W. FERRIER, LL. B.,
Lecturer on Admiralty and Customs Practice.

JOSE ESCALER, M. A., LL. M.,
Lecturer on Comparative Jurisprudence.

ROBERT E. L. NEWBERNE, M. S., M. D.,
Lecturer on Medical Jurisprudence.

JOSE ESPIRITU, LL. B.,
Temporary Lecturer on Roman Law,
Law Librarian.

¹ Resigned.

THE COLLEGE OF LAW

The Board of Regents provided for the establishment of a College of Law in the University of the Philippines on January 12, 1911. The college was opened in July of the same year with two classes doing work. Both a three and a four years' course are now offered. The first is intended for students having no work other than that in the college, for whose benefit day classes are held; the latter is for those who have outside employment, as in the Government departments or other offices, for whom an opportunity is given by attendance on evening classes to take the prescribed courses. Leading members of the bar and judiciary, and competent instructors devoting their time exclusively to the school, compose the faculty.

The aim of the college is to furnish facilities for preparing students by thorough and practical legal instruction, conducted in the English language, covering all the fundamental law subjects, for the practice of law in the Philippine Islands.

ADMISSION

Applicants for admission to the College of Law must have completed the two years' preparatory law course in the College of Liberal Arts or its equivalent. The question of whether a course is equivalent to the prescribed requirements for admission will be determined in each case by the university committee on admissions. The mere possession of the degree of Bachelor of Arts from an accredited school will not be considered sufficient for admission to the College of Law. Graduates of the Ateneo de Manila and Silliman Institute with the degree of Bachelor of Arts will be admitted to the College of Law, the former being required to take History 4 and 5, and in some cases English 1, in the College of Liberal Arts.

Students desiring advanced standing should forward or hand to the Dean the certificate described on page 44 of this catalogue. The requirements for admission of special students are also set forth on page 44. Only in rare instances will special students not possessing the requirements for regular entrance be admitted to the college, and then probationally, and with the express understanding that only on passing all the

required subjects for admission and all law subjects will they be eligible for a degree.

The routine of entrance for students desiring to matriculate in the college for the first time is as follows: (1) Confer with the chairman of the university committee on admissions, presenting a certificate of work accomplished and an application for matriculation; (2) if admitted, register with the secretary of the University; (3) see the Dean of the College of Law for selection of courses; (4) pay fees to the secretary; (5) secure class cards from the secretary of the law faculty. Students previously matriculated should first report to the Dean for selection of courses, next pay fees to the secretary, and lastly secure class cards from the secretary.

FEES AND EXPENSES

The tuition fee is ₱40 per semester, or ₱75 for the year if paid at the beginning of the first semester. Students of other colleges of the University taking courses in the College of Law amounting to less than 10 units a semester may be charged a tuition fee of ₱4 per unit a semester. In addition, all students are required to pay the sum of ₱1 each semester into the treasury of the athletic association. All fees must be paid in advance.

Textbooks are purchased by the students. They can be expected to cost nearly ₱75 per annum. Duplicate textbooks for the use of students with limited means can usually be found in the college library.

TIME AND PLACE

The academic year 1914-15 begins on June 29, 1914, and ends on or about March 30, 1915.

Day classes for students enrolled in the three-year course are given. The evening classes begin at either 5.30, 6.30, or 7.30 p. m. of every week day, as assigned. The meetings of each course extend over a period of one hour. All law classes meet in University Hall, Calle Padre Faura, Ermita.

ENROLLMENT IN COURTS OF FIRST INSTANCE

Rule VI of the Supreme Court, for the examination of candidates for admission to the practice of law, requires all persons commencing the study of law to register their names in the office of the clerk of the court of the province in which they pursue their studies (Court of First Instance of Manila) within the month of June of each year for three consecutive years.

ATHLETICS

All students are required to take systematic physical exercise, provided they shall be certified as fit therefor by the medical examiner. Should any student, for exceptional reasons, be excused from athletics by the Dean, such student will be required to present a signed statement at the end of each semester to the effect that he has taken an average of two hours' exercise each week.

ATTENDANCE

Regular attendance upon all exercises is required. Any student who, for unavoidable cause, is obliged to absent himself from any college exercise must obtain a written excuse from the secretary of the law faculty signed by the Dean, to be shown his instructors. Leave to be absent does not, however, absolve the student from doing the work covered by his class during his absence, to the satisfaction of the instructor in charge. Any student who, during the semester, has for any cause been absent for more than the equivalent of four week's exercises in any subject shall be excluded from the examination in that subject and required to take the work again in class.

WORK IN OTHER COLLEGES

Students may with the permission of the Dean and without additional expense, except the payment of laboratory fees, elect courses in other colleges of the University. The work in history, English, and political economy is especially valuable for law students.

SYSTEM OF INSTRUCTION

There are in vogue in law schools four distinct methods of instruction: (1) Lectures, (2) textbooks, (3) cases, and (4) the study of statute law. The college does not adopt any one of these to the exclusion of the others, but prefers by a combination of all to meet local conditions. The courses in the curriculum are based on the statute law in force in the Islands, and the leading opinions of the Supreme Court of the United States and of the Supreme Court of the Philippine Islands construing the same. Supplementary thereto, textbooks are used in the main during the first year and outlines and cases subsequently. Practical work, such as conveyancing and practice court, is particularly emphasized.

PRACTICE COURTS

The purpose of the practice courts, in conjunction with the courses on pleading and practice, is to qualify the student, as far as possible, for the actual practice of his profession upon graduation. During the first year, in the course on elementary law, instruction is given in finding the law, in legal bibliography, and in the use of decisions and statutes; in the course on Philippine Government on the organization and jurisdiction of the courts of the Islands; and in elementary procedure, general, introductory principles. During the second year, the courses on procedure, both criminal and civil, embrace practice and the principles of pleading. Evidence and extraordinary legal remedies then follow in order. Supplemental to the foregoing the second and third-year students are given instruction and practice in brief making and the argument and decision of questions of law before supreme courts composed of members of the faculty and students. In the senior year every student is required to act as counsel in the preparation and trial of four moot-court cases, in which all the stages of the proceedings are carried out from the filing of the complaint to final judgment. The organization and conduct of the practice courts is in charge of a member of the faculty assisted by other members of the faculty. The senior practice court is completely organized, with the member of the faculty, who is in charge of the practice courts, as the presiding judge, a clerk, and a sheriff. The court room is fitted up with all the necessary furniture and fittings necessary for the trial of cases.

LIBRARIES

A working law library is being developed in the college. Students also have access to the Philippine General Library and to the libraries of the Supreme Court and the office of the Attorney-General.

STUDENT ADVISER

The Dean, or in his absence the secretary, of the law faculty acts as adviser to law students. The offices of the Dean and secretary are open daily from 5 to 6 p. m. for this purpose.

STUDENT ACTIVITIES

The College of Law encourages the development of proper student activities. The different classes have organizations. The Philippine Barristers meets weekly for practice in public speaking and parliamentary law. Practice clubs are organized

in the sophomore and junior classes during the second semester for the trial of moot-court cases. The College of Law Musical Club has the object which its name indicates. A college annual is published. An annual oratorical contest, an annual debate, and an annual interclass athletic meet with appropriate prizes are held. The student council composed of the heads of the different organizations and a representative from each class and the college alumni controls these and other student enterprises.

SPECIAL LECTURES

The plan has been inaugurated, and has become an established custom, of having an opening lecture by some prominent member of the bar or judiciary on the evening previous to the opening of the college. A short social reception precedes the lecture, when students can meet each other and the faculty. Lecturers heretofore have been Hon. Charles B. Elliott, Secretary of Commerce and Police; Mr. Justice Carson of the Supreme Court; Mr. Justice Johnson of the Supreme Court; and Hon. Rafael Palma of the Philippine Commission.

Special lectures are also given before the different classes and before the law forum meeting monthly composed of all law students. Such lectures during the year 1913-14 included Hon. Gregorio Araneta, Attorney-General Villamor, Mr. Francisco Ortigas, Mr. José Escaler, Judge Abreu, Colonel Hull, Mr. Rafael del Pan, Mr. Gregorio Nieva, Commissioner Singson, Judge Southworth, Mr. Enrique Altavás, and others.

PRIZES

The following prizes, under the conditions named, are awarded during each academic year: Manresa's Commentaries on the Civil Code and Wigmore on Evidence offered by "An Alumnus of the University" to the two students who during the entire course have, respectively, attained the highest scholastic standing; "Callaghan & Co., Law Publishers, Chicago, prize," consisting of a set of "Andrews' American Law and Procedure" to the student who is in his second year in the College of Law attains the best general average during that year; a gold medal and ₱75 and a silver medal and ₱25 furnished by Justice Carson of the Supreme Court as prizes for the winners of the oratorical contest; the Rafael Del Pan cup to the team which is victorious in the annual debate between the Seniors and the Philippine Barristers; and an athletic pennant to the class winning the college athletic meet.

REQUIREMENTS FOR GRADUATION

It is the purpose of the college that its work shall be characterized by completeness and thoroughness. The examinations held at the end of each semester are, consequently, made comprehensive and searching. The grades of students on their examinations and class records are indicated by the numbers 1, 2, 3, 4, 5, the first three numbers indicating completion of the course, 4 conditionally passed, and 5 not passed. Special examinations for the removal of conditions will ordinarily not be held; a student conditioned in any subject should prepare for and take the next regular semester examination.

The faculty will not hesitate to drop a student from the rolls at any time during the year when satisfied that he is neglecting his studies, is not conforming to the requirements of the college, or is not fitted for the profession of law.

THESIS

Each candidate for a degree is required, in his senior year, to prepare and present a satisfactory thesis upon some subject upon which the law is unsettled, disputed, or in a formative condition. The thesis must consist of a thorough and intelligent comparison and discussion of the cases pertaining to the subject. It must not be less than 4,000 words in length and must be filed with the Dean on or before the 1st day of January of the year in which the degree is to be granted.

Rules governing the writing of thesis, including a list of subjects, are issued annually by the thesis committee. All theses are bound and placed in the school library. Those of exceptional merit will be published.

DEGREE

Students must complete the full courses of instruction, perform all required exercises, and pass all examinations to the satisfaction of the faculty before being recommended for the degree of Bachelor of Laws.

INFORMATION

For further information address the Dean of the College of Law, University of the Philippines, Manila, P. I. The Dean and the secretary will be in the school building from 4 to 6 p. m. from June 19 to June 24, 1914, for the purpose of conferring with students, and from 4 to 7 p. m. from June 25 to 29 to register students.

COURSES OF INSTRUCTION

FIRST YEAR

FIRST SEMESTER

Elementary Law.—This course gives a general view of the development of law and of rights, remedial and substantive; a description of the sources of the law in force in the Philippines, and a systematic outline of the principal branches of the law, public and private. Its chief purposes are to set forth the fundamental conceptions which underlie every department of the law, and to indicate the subject and scope of the various courses offered in the curriculum. The following subjects are also covered: Where to find the law; how to use decisions and statutes (including study of cases); how to find the law; legal bibliography.

Textbooks: Clark, *Elementary Law*; *Brief Making*, by various authors.

[2 units. Professor CONANT.]

Institutes of Roman Law.—A study of its evolution from the earliest period to the completion of the *Corpus Juris*; followed by a critical analysis of the institutes. Syllabi, lectures, and text of the institutes.

[2 units. Judge LOBINGER.]

Obligations (Contracts).—Based on Book IV, Titles I, II, XII, (chapters 1, 3) XIII, XVI of the Civil Code, and on Book I, Title IV, of the Code of Commerce. Lectures; assigned cases from the Philippine Reports.

Textbook: Bishop on Contracts.

[2 units. Judge CROSSFIELD.]

Persons and Family Relations.—Based on Book I and Book IV, Title III, of the Civil Code; the Spanish Marriage Law of 1870; sections 3002–3031 and 3216–3223 (Compilation) containing portions of the Code of Civil Procedure; and on General Orders No. 68. Explanatory lectures; assigned cases from the Philippine Reports and American decisions.

Textbook: Tiffany's *Persons and Domestic Relations*.

[2 units. Mr. BOCOSO.]

Philippine Government.—Lectures on the administration and Government of the Philippine Islands, with assigned reading.

[2 units. Dean MALCOLM.]

Property.—Includes both Real and Personal Property and Sales. A study of Book II; Book III, Titles I, II; Book IV, Titles IV, V, VI, (chapters 1, 2) VII, XII (chapter 4), XVIII (chapter

1) of the Civil Code; Book II, Title VI, of the Code of Commerce; and of the Spanish Law of Waters of August 3, 1886. Explanatory lectures; assigned cases from the Philippine Reports.

[5 units. Mr. BOCOSO.]

Public Speaking.—Elements of Elocution. Lectures, recitations, and practice.

Textbook: Fulton and Trueblood, Essentials of Public Speaking.

[2 units. Mr. HILADO.]

SECOND SEMESTER

Crimes.—Study of the Penal Code and Penal Acts of the Philippine Commission and Legislature. Assigned cases from the Philippine Reports.

[5 units. Mr. PAREDES.]

Debating.—Lectures; practice, with criticism.

Textbook: Laycock and Scales, Argumentation and Debate.

[2 units. Mr. HILADO.]

Elementary Procedure.—A study of the general principles of remedial law with special attention to the inferior courts; textbook, syllabi, and cases.

[1 unit. Judge LOBINGIER.]

Land Registration and Mortgages.—Based on the Philippine Bill, sections 13–18, 63–65; the Friar Lands Act; the Public Land Law; the Land Registration Law; the Spanish Mortgage Law; the Regulations for the Enforcement of the Mortgage Law; and the Chattel Mortgage Law. Introductory lectures on the Torrens' system; assigned cases from the Philippine Reports. Special lectures by Mr. Ortigas.

[3 units. Mr. SANTOS.]

Modern Civil Law.—A general view of the private law of Spain, France, Italy, and Germany. Syllabi and lectures.

[2 units. Judge LOBINGIER.]

Obligations (Contracts).—Continuation of course of first semester. Quasi contracts are covered. Special lectures by Mr. Ortigas.

[3 units. Judge CROSSFIELD.]

Practice Clubs (I).—Argument and decision of cases on agreed statements of facts.

[Professor CONANT and Mr. HILADO.]

SECOND YEAR

FIRST SEMESTER

Agency.—Based on Book IV, Title IX, of the Civil Code, and on Book I, Title VI, Book II, Title III, of the Code of Commerce. Assigned cases from the Philippine Reports and American decisions.

Textbooks: Mechem, Outlines of Agency; Mechem, Cases on Agency.

[2 units. Mr. DeWITT.

Criminal Procedure.—Study of the Code of Criminal Procedure as amended. Assigned cases.

Textbook: Sunderland's Cases on Criminal Procedure.

[2 units. Mr. VILLAREAL.

Mercantile Law.—Based on Book IV, Title XIV, of the Civil Code; Book I, Titles I, II, III, V, and Book II, Titles IX, X, XI, XII, XIII, of the Code of Commerce; the Warehouse Receipts Law; and the Negotiable Instruments Law. Includes suretyship. Assigned cases.

Textbook: Ogden's Negotiable Instruments.

[4 units.

Oratory.—Lectures; a study of the lives of great orators; analysis of the world's greatest orations. Each student must write one complete and finished oration.

Textbooks: Shurter, Rhetoric of Oratory; Shurter, Masterpieces of Modern Oratory.

[2 units. Mr. HILADO.

Private Corporations.—Based on the Corporation Law; Acts Nos. 667, 701, and 1779, and portions of the Code of Commerce. Lectures; assigned cases.

Textbook: Richard, Cases on Private Corporations. Reference Book: Elliott on Private Corporations.

[4 units. ———.

Torts.—Explanatory lectures on Torts under the civil law. Pertinent provisions of Philippine Law are studied.

Textbook: Burdick's Cases on Torts.

[2 units. Professor CONANT.

SECOND SEMESTER

Admiralty.—Study of Book III, Titles I, II, III (sections 1, 2, 3), IV, V, and Book IV, Title II, of the Code of Commerce. Assigned cases.

[1 unit. Mr. FERRIER.

Bailments and Carriers.—Brief consideration of bailments in general and particular attention to the law of pledge, innkeepers, and common carriers of goods; carriers of passengers; the post-office and telegraph and telephone companies as carriers of messages. Based on Book IV, Titles VI (chapter 3), X, XI, XV (chapter 2), of the Civil Code; Book II, Titles IV, V, VII, of the Code of Commerce and Act 98, as amended, of the Philippine Commission. Explanatory lectures; assigned cases.

Textbooks: Goddard, *Outlines of Bailments and Carriers*; Goddard's *Cases on Bailments and Carriers*.

[2 units. Mr. BOCOBO.

Bankruptcy and Insolvency.—Lectures; study of the Bankruptcy and Insolvency Law; preparation of papers.

[1 unit. Judge CROSSFIELD.

Civil Procedure.—Study of the Code of Civil Procedure as amended. Assigned cases from the case book and the Philippine and California Reports. Code pleading and practice is emphasized.

Textbook: Sunderland's *Cases on Code Pleading*.

[5 units. Judge GOLDSBOROUGH.

Damages.—Lectures and assigned cases.

Textbook: Beale, *Cases on Damages*.

[2 units. Professor CONANT.

Insurance.—Based on Book IV, Title XII (chapters 1, 2), of the Civil Code, and on Book II, Title VIII, and Book III, Title III, section 3, of the Code of Commerce. Explanatory lectures; assigned cases from the Philippine Reports and American decisions.

[1 unit. Mr. BOCOBO.

Partnership.—Based on Book IV, Title VIII, of the Civil Code, and on Book II, Title I, sections 1, 2, 3, 5, 6, and 13, of the Code of Commerce. Assigned cases.

Textbook: Mechem, *Elements of Partnership*; Mechem, *Cases on Partnership*.

[2 units. Mr. DEWITT.

Public Corporations.—Assigned work and cases.

Textbook: Macy, *Cases on Municipal Corporations*.

[1 unit. Dean MALCOLM.

Practice Clubs (II).—Argument and decision of cases on agreed statements of facts.

[Professor CONANT and Mr. HILADO.

THIRD YEAR

FIRST SEMESTER

Code Review.—A review of Criminal Procedure and Civil Procedure, with consideration of previous examination questions preparing the student especially for the bar examination.

[2 units. Mr. PAREDES and Judge GOLDSBOROUGH.

Constitutional Law.—A study of the nature, development, and subject matter of the modern constitution. Lectures and leading cases.

Textbook: Hall's *Cases on Constitutional Law*.

[2 units. Judge LOBINGIER.

Evidence.—Based on the portions of the Code of Civil Procedure found in sections 2704–2807, 2812–2814 of the Compilation of the Acts of the Philippine Commission. Assigned cases. (When the number of students so warrants, this subject will be given as a four-hour day course for the second semester of the second year in order, as in the four-year course, that the student may have finished this work before taking up the senior practice court.

Textbook: Thayer's Cases on Evidence.

[2 units. Judge LOBINGER.

Public International Law.—Lectures, with assigned reading from Moore's Digest of International Law.

Textbook: Davis' on International Law.

[2 units. Justice CARSON.

Public Officers and Extraordinary Legal Remedies.—Presents the general principles of the law of public officers. Especial attention is given to the writs of mandamus, prohibition, injunction, certiorari, quo warranto, and habeas corpus, particularly as these writs are described and interpreted in the Code of Civil Procedure and the Code of Criminal Procedure and in the opinions of the Supreme Court of the Philippine Islands. The election law of the Philippines is also studied. Lectures with assigned reading and cases. Special lectures on elections by Executive Secretary Villamor.

Textbook: Goodnow's Cases on the Law of Officers.

[2 units. Dean MALCOLM.

Wills, Descent and Administration.—Comprehends the nature of wills; formalities prescribed by law for the due execution of wills; the probating of wills; testamentary and legal succession; the administration of decedent's estates, etc. Based on Book III, Title III, of the Civil Code; the portions of the Code of Civil Procedure found in sections 3002–3215, 3224–3234 of the Compilation of the Acts of the Philippine Commission; the Act concerning estates of deceased civil servants; and portions of the Land Registration Law. Explanatory lectures. Assigned cases.

Textbook: Costigan's Cases on Wills and Administration.

[3 units. Mr. BOCOSO.

Special Courses.—A varying number of hours given throughout the senior year, principally by lectures, counting as 2 units, on the following subjects:

(a) *Comparative Jurisprudence.*—Lectures on the principles underlying the different systems of legislation in Europe.

[Mr. ESCALER.

(b) *Customs Practice*.—Lectures, with assigned cases.

[Mr. FERRIER.

(c) *Legal Ethics*.—Lectures; practical suggestions for practice.

[Judge SUMULONG.

(d) *Medical Jurisprudence*.—Lectures.

[Doctor NEWBERNE.

(e) *Mining Law*.—Lectures with assigned work, including sections 15, 20–62, of the Philippine Bill, and Acts Nos. 624 and 1128 of the Philippine Commission, as amended.

[Judge INGERSOLL.

(f) *Penology*.—Lectures.

[Mr. DEL PAN.

(g) *Social Ethics*.—An historical and critical study of the relation of the individual to society. Lectures, assigned reading, and special reports. This course is open to students in the College of Law who have taken or are taking Sociology 1.

[President BARTLETT.

Practice Court.—The purpose of the court is to afford students practical instruction in pleading and practice and actual experience in the commencement and trial of cases through all their stages. It is more particularly described on page 276.

[Professor CONANT and Mr. HILADO.

Thesis.—See page 278 hereof.

SECOND SEMESTER

Code Review.—A review of civil law, mercantile law, and penal law in their broadest senses, with consideration of previous examination questions preparing the student especially for the bar examinations.

[5 units. Mr. BOCOBO and Mr. VILLAREAL.

Conveyancing.—Practical work in the preparation of all the more important forms of conveyances, including thereunder deeds, mortgages, wills, and assignments of various sorts, contracts, agreements, corporate and partnership articles, and other instruments as the lawyer in actual practice is likely to be called upon to prepare.

[2 units. Professor CONANT.

Evidence.—Continuation of course of first semester.

[2 units. — — —.

Private International Law.—Lectures; study of text; leading cases.

Textbook: Minor's Conflict of Laws.

[2 units. Justice CARSON.

Special Courses.—Described under courses for the first semester.

Practice Court.—Follows same plan as in first semester.

Thesis.—See page 278 hereof.

Outline of Courses

THREE-YEAR COURSE

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Elementary law	2	Crimes	5
Institutes of Roman law	2	Debating	2
Obligations	2	Elementary procedure	1
Persons and family relations	2	Land registration and mortgages	3
Philippine Government	2	Modern civil law	2
Public speaking (elements)	2	Obligations	3
Property	5	Practice clubs .....	...
Total	17	Total	16

SECOND YEAR

First semester:	Units.	Second semester:	Units.
Agency	2	Admiralty	1
Criminal procedure	2	Bailments and carriers	2
Mercantile law	4	Bankruptcy and insolvency	1
Oratory	2	Civil procedure	5
Private corporations	4	Damages	2
Torts	2	Insurance	1
Total	16	Partnership	2
		Public corporations	1
		Practice clubs .....	...
		Total	15

THIRD YEAR

First semester:	Units.	Second semester:	Units.
Code review	2	Code review	5
Constitutional law	2	Conveyancing	2
Evidence	2	Evidence	2
Public international law	2	Private international law	2
Public officers and extraordinary legal remedies	2	Special courses ^a	1
Wills, descent, and administration	3	Practice court .....	...
Special courses ^a	1	Thesis .....	...
Practice court .....	...	Total	12
Thesis .....	...	
Total	14		

FOUR-YEAR COURSE

FIRST YEAR

First semester:	Units.	Second semester:	Units.
Elementary law	2	Crimes	5
Institutes of Roman law	2	Debating	2
Obligations	2	Elementary procedure	1
Persons and family relations	2	Modern civil law	2
Philippine Government	2	Obligations	3
Public speaking (elements)	2	Total	13
Total	12		

^a Comparative jurisprudence, customs practice, legal ethics, medical jurisprudence, mining law, penology, social ethics (optional).

Outline of Courses—Continued

SECOND YEAR

First semester :	Units.	Second semester :	Units.
Agency	2	Civil procedure	5
Criminal procedure	2	Insurance	1
Oratory	2	Land registration and mortgages	3
Property	5	Partnership	2
Torts	2	Practice clubs .....	...
Total	13	Total	11

THIRD YEAR

First semester :	Units.	Second semester :	Units.
Evidence	2	Admiralty	1
Mercantile law	4	Bailments and carriers	2
Private corporations	4	Bankruptcy and insolvency	1
Wills, descent, and administration	3	Conveyancing	2
Total	13	Damages	2
		Evidence	2
		Public corporations	1
		Practice clubs .....	...
		Total	11

FOURTH YEAR

First semester :	Units.	Second semester :	Units.
Code review	2	Code review	5
Constitutional law	2	Private international law	2
Public international law	2	Special courses ^a	1
Public officers and extraordinary legal remedies	2	Practice court .....	...
Special courses ^a	1	Thesis .....	...
Practice court .....	...	Total	8
Thesis .....	...	
Total	9		

There is thus required for graduation the completion of 100 units, 90 as given above, and 10 units granted for the practice court, thesis, and other required work.

Students, College of Law, 1913-14

GRADUATE

Cheek, William D., LL. B., University of the Philippines, Manila.

FOURTH-YEAR CLASS

Cordova, Gregorio, Cabancalan, Occidental Negros.	Leaño, Eladio R., Vintar, Ilocos Norte.
Gonzalez, Javier, Apalit, Pampanga.	Lopez, Eusebio, Lipa, Batangas.
Goyena, Manuel G., Manila.	Lorenzo, Pablo, Manila.
Javier, Benedicto, Taytay, Rizal.	Mañalac, Anatalio, Cavite, Cavite.
Jugo, Fernando, Bacolod, Occidental Negros.	Noble, H. Lawrence, B. A., M. A., University of Pennsylvania, Manila.
Lacson, Ricardo C., Silay, Occidental Negros.	Power, Edward, Manila.

^a Comparative jurisprudence, customs practice, legal ethics, medical jurisprudence, mining law, penology, social ethics (optional).

Students, College of Law, 1913-14—Continued

FOURTH-YEAR CLASS—continued

- | | |
|---|---|
| Ramos, Eusebio, San Juan, Nueva Ecija. | Vargas, Jorge B., B. A., University of the Philippines, Iloilo, Iloilo. |
| Reyes, Alexander, B. A., University of the Philippines, Estancia, Iloilo. | Victoriano, Gustavo, Cavite, Cavite. |
| Torres, Aurelio, Dagupan, Pangasinan. | Virata, Emilio P., San Francisco de Malabon, Cavite. |
| | Yulo, Jose, Bago, Occidental Negros. |

THIRD-YEAR CLASS

- | | |
|---|---|
| Abaya, Luis D., Pagsanjan, Laguna. | Jamison, Edwin C., Manila. |
| Agana, Marcelino, Tarlac, Tarlac. | Jimenea, Ramon T., Jaro, Iloilo. |
| Aquino, Bernabe, Mangaldan, Pangasinan. | Kamantigue, Jacinto M., B. A., University of Wisconsin, Imus, Cavite. |
| Baltao, Eugenio, San Miguel, Bulacan. | Laurel, José P., Tanauan, Batangas. |
| Belmonte, Gabriel, Zaragoza, Nueva Ecija. | Leaño, Melecio, Boac, Marinduque. |
| Binag, Miguel, Cabagan Nuevo, Isabela. | Legaspi, Paz A., Manila. |
| Borlongan, Mateo, Paombong, Bulacan. | Luna, Juan L., Calapan, Mindoro. |
| Canto, Constantino Z., Tigbauan, Iloilo. | Mañago, Faustino, Imus, Cavite. |
| Cantos, Alfredo M., Batangas, Batangas. | Martin, Mateo, Malabon, Rizal. |
| Chase, H. E., Manila. | Millares, Anastacio, Romblon, Romblon. |
| Clemenía, Engracio F., B. A., Ateneo de Manila, Polo, Bulacan. | Montemayor, Marcellano, B. A., University of the Philippines, Alaminos, Pangasinan. |
| Concepcion, Hermogenes, Cabanatuan, Nueva Ecija. | Montinola, Aurelio, B. A., Ateneo de Manila, Iloilo, Iloilo. |
| Cuyugan, Antonio, San Fernando, Pampanga. | Naidas, Andres, Badoc, Ilocos Norte. |
| Del Rosario, Vicente, Lipa, Batangas. | Natividad, Felipe, San Mateo, Rizal. |
| Dominguez, Pedro, San Roque, Cavite. | Nepomuceno, Ricardo, Boac, Marinduque. |
| Esquivel, Cecilio R., Jaen, Nueva Ecija. | Palileo, Aurelio, Pagsanjan, Laguna. |
| Estella, Felipe E., Masinloc, Zambales. | Paredes, Jesus V., B. A., Ateneo de Manila, Bangued, Ilocos Sur. |
| Fonacier, José, Claveria, Cagayan. | Quirino, Elpidio, Vigan, Ilocos Sur. |
| García, Gaudencio, Tanauan, Batangas. | Sarenas, Juan A., Cabanatuan, Nueva Ecija. |
| Guingona, José, Iloilo, Iloilo. | Sebastian, Proceso E., Claveria, Cagayan. |
| Hidalgo, Alfredo Rizal, LL. B., National University Law school, Manila. | Tan, Bienvenido A., Manila. |
| Ibañez, Fidel, San Francisco de Malabon, Cavite. | Teodoro, José, Mariguina, Rizal. |
| | Valera, Federico P., Bayombong, Nueva Vizcaya. |
| | Villamin, Vicente, Lemery, Batangas. |
| | Villanueva, Francisco, Manila. |
| | Yamzon, Victoriano, B. A., University of the Philippines, Manila. |

Students, College of Law, 1913-14—Continued

SECOND-YEAR CLASS

- Albaña, Meliton, Panitan, Capiz.
 Alcid, Valentin, Vigan, Ilocos Sur.
 Alisangco, Mariano R., Bauang, La Union.
 Ames, George B., B. S., Yankton College, Manila.
 Buenaventura, Catalino, Imus, Cavite.
 Calumpang, Angel B., B. A., Silliman Institute, Tanhay, Oriental Negros.
 Campbell, Clyde W., B. A., Grove City College, Manila.
 De la Paz, Fabian, Manila.
 De las Alas, Teofilo, Indang, Cavite.
 Espejo, Cornelio, Bauang, La Union.
 Estella, Nicolas, Masinloc, Zambales.
 Gangnuss, H. W., Manila.
 Gil, Jose, Manila.
 Gullas, Paulino, B. A., University of the Philippines, Cebu, Cebu.
 Gullas, Vicente, Cebu, Cebu.
 Laguio, Constancio, Boac, Marinduque.
 Laperal, Arcadio, Manila.
 Lavedes, Francisco, Atimonan, Tayabas.
- Lizada, Felipe R., Malanay, Tayabas.
 Luna, Rufino, Gasan, Marinduque.
 Martinez, Lorenzo B., Libog, Albay.
 Padilla, Pablo R., Peñaranda, Nueva Ecija.
 Padilla, Sabino, B. A., Ateneo de Manila, Manila.
 Pineda, Constancio, B. A., Ateneo de Manila, Angeles, Pampanga.
 Poblete, Pedro M., Indang Cavite.
 Rivas, José A., Vigan, Ilocos Sur.
 Samson, Jeronimo, B. A., Ateneo de Manila, Pulilan, Bulacan.
 Santos, D. J., B. S., Indian Academy of Science, Manila.
 Sempio, Antonio G., Calumpit, Bulacan.
 Tan Carlos, Ormoc, Leyte.
 Tomeldan, José E., Binalonan, Pangasinan.
 Van Hoven, C. H., Manila.
 Villanueva, Dionisio, San Narciso, Zambales.
 Williams, E. H., Manila.

FIRST-YEAR CLASS

- Albar, Francisco, B. A., Ateneo de Manila, Capiz, Capiz.
 Araneta, Ramon S., B. A., Ateneo de Manila, Bago, Occidental Negros.
 Bañagale, Paulino, San Pablo, Laguna.
 Benitez, Conrado, Ph. B., M. A., University of Chicago, Pagsanjan, Laguna.
 Benitez, Francisco, B. S., Columbia University, Pagsanjan, Laguna.
 Braganza, Enrique, B. A., Ateneo de Manila, Alaminos, Pangasinan.
 Cain, A. W., B. A., L. I., University of Georgia, M. A., University of the Philippines, Manila.
 Campo, Lorenzo, Macalelon, Tayabas.
 Ebro, Tomas E., B. A., Ateneo de Manila, Valladolid, Occidental Negros.
 Elumba, Hilarion Z., B. A., Silliman Institute, Surigao, Surigao.
- Francia, Julio, B. S. in C. E., Purdue University, Pagsanjan, Laguna.
 Gonzalez, Cesar, B. A., Ateneo de Manila, Baliuag, Bulacan.
 Hoskins, C. M., Manila.
 Joven, Arturo, B. A., Ateneo de Manila, Bacolor, Pampanga.
 Lender, Bernhard, Altona, Germany.
 Norton, Albert C., B. S., Temple University, Manila.
 Oboza, Felicisimo, G., B. A., Ateneo de Manila, Bani, Pangasinan.
 Onrubia, Lorenzo, Cavite, Cavite.
 Page, Wm. Tracy, Manila.
 Pamatmat, Sebastian C., B. A., University of the Philippines, Santa Cruz, Laguna.
 Renollo, Proceso R., B. A., Silliman Institute, New Ayuquitán, Oriental Negros.

Students, College of Law, 1913-14—Continued

FIRST-YEAR CLASS—continued

Roldan, Arsenio, B. A., Ateneo de Manila, Navotas, Rizal.	Verzosa, Glicerio, B. A., Ateneo de Manila, Batac, Ilocos Norte.
Santos, Alejandro, Taguig, Rizal.	Ylagan, Pedro Y., B. A., Silliman Institute, Taal, Batangas.
Schwarzkopf, Sydney C., Manila.	

SPECIALS

Armstrong, W. A., Manila.	Montaño, José, Iloilo, Iloilo.
De los Santos, Simplicio, Baliuag, Bulacan.	Santiago, Felicísimo, Subic, Zambales.
Fernandez, Felipe, Polo, Bulacan.	Terry, Ernest M., Manila.
Fox, Thomas J., Manila.	Varela, Vicente, Bago, Occidental Negros.
Green, John W., Manila.	Walter, Wallace W., Manila.
Hartigan, Leonard W., Manila.	Winkel, Leonard A., Manila.
Hernandez, José, Iloilo, Iloilo.	Wright, Paul R., Manila.
Matsumoto, Shoji, Manila.	

STUDENTS OF OTHER COLLEGES TAKING WORK IN COLLEGE OF LAW

Ancheta, Leon E., Manila.	Guanio, Domingo, B. A., University of the Philippines, Gapan, Nueva Ecija.
Burgos, José X., Manila.	Nostratis, Ricardo, B. A., University of the Philippines, San Francisco de Malabon, Cavite.
Corcuera, Aurelio L., B. A., University of the Philippines, Manila.	
Dayao, Amado, Malolos, Bulacan.	
Gochoco, Jacinto, Cebu, Cebu.	

SUMMARY OF ATTENDANCE, COLLEGE OF LAW

Graduate	1
Fourth-year class	19
Third-year class	48
Second-year class	34
First-year class	26
Special students	15
Students of other colleges taking work in College of Law.....	7
Total Attendance	150

SUMMARY OF ATTENDANCE, 1913-14, UNIVERSITY OF THE PHILIPPINES

College of Liberal Arts.....	368	
Registered in other colleges.....	51	
		317
College of Medicine and Surgery.....		104
College of Agriculture.....		294
College of Veterinary Science.....		31
College of Engineering.....		12
College of Law.....	150	
Registered in other Colleges.....	7	
		143
Total		901

Graduates of the College of Medicine and Surgery

1909

1. Jose Eduque	Doctor of Medicine.
2. Isabelo Katigbak	Doctor of Medicine.
3. Leoncio Lopez	Doctor of Medicine.
4. Vicente E. Manapat.....	Doctor of Medicine.
5. Ramon Ongsiaco	Doctor of Medicine.
6. Lorenzo Ordoñez	Doctor of Medicine.
7. Pacifico Panlilio	Doctor of Medicine.
8. Vicente Rivera	Doctor of Medicine.

HONOR STUDENT AND WINNER OF THE GERMINAL PRIZE

LORENZO ORDOÑEZ, *Doctor of Medicine.*

1910

1. Joaquin Banzon	Doctor of Medicine.
2. Melecio Castro	Doctor of Medicine.
3. Jose Elchico	Doctor of Medicine.
4. Jose Garcia	Doctor of Medicine.
5. Ricardo Leynes	Doctor of Medicine.
6. Rosendo R. Llamas.....	Doctor of Medicine.
7. Miguel Lukban	Doctor of Medicine.
8. Cayo Marfori	Doctor of Medicine.
9. Alfonso Raquel	Doctor of Medicine.
10. Ruperto Roque	Doctor of Medicine.
11. Victor Sevilla	Doctor of Medicine.
12. Augusto Villalon	Doctor of Medicine.

HONOR STUDENT AND WINNER OF THE GERMINAL PRIZE

RICARDO LEYNES, *Doctor of Medicine.*

1911

Jose Alvarez	Doctor of Medicine.
Maximo Borromeo	Doctor of Medicine.
Jose S. Hilario.....	Doctor of Medicine.

1912

1. Felipe Almeda	Doctor of Medicine.
2. Martin Baltazar	Doctor of Medicine.
3. Isabelo Concepción	Doctor of Medicine.
4. José P. Manalang.....	Doctor of Medicine.
5. Maria Paz Mendoza.....	Doctor of Medicine.
6. Gonzalo Montemayor	Doctor of Medicine.
7. Manuel Ramirez	Doctor of Medicine.
8. Rafael M. Santos.....	Doctor of Medicine.
9. Pio Valencia	Doctor of Medicine.

1913

1. Elias Domingo	Doctor of Medicine.
2. Primitivo F. Elizalde.....	Doctor of Medicine.
3. Isaac Eustaquio	Doctor of Medicine.
4. Hilarion T. Feliciano.....	Doctor of Medicine.
5. Artemio Lijano	Doctor of Medicine.
6. Victoriano Luna	Doctor of Medicine.
7. Teodorico Valerio	Doctor of Medicine.
8. Herminio Velarde	Doctor of Medicine.

1914

1. Manuel V. Argüelles y Marasigan.....	Doctor of Medicine.
2. Teodoro C. Arvisú.....	Doctor of Medicine.
3. James Lofton Booth.....	Doctor of Medicine.
4. Amparo Concha y Victoriano.....	Doctor of Medicine.
5. Juan Fernando y Rodrigo.....	Doctor of Medicine.
7. Severina Luna y Dinglasan.....	Doctor of Medicine.
8. Sixto Orosa é Ylagan.....	Doctor of Medicine.
9. José Santiago Villacorta	Doctor of Medicine.

HONOR STUDENT AND WINNER OF THE GERMINAL PRIZE

SEVERINA LUNA Y DINGLASAN, *Doctor of Medicine.*

Graduates of the College of Liberal Arts

1911

1. Remedios Mendoza	Bachelor of Arts.
2. Alexander Reyes	Bachelor of Arts.
3. George B. Vargas.....	Bachelor of Arts.
4. Victoriano Yamson	Bachelor of Arts.

1912

1. Canuto O. Borromeo.....	Bachelor of Arts.
2. Eduardo Claudio	Bachelor of Arts.
3. Aurelio L. Corcuera.....	Bachelor of Arts.
4. Severo Cosca'	Bachelor of Arts.
5. Jose Q. Dacanay.....	Bachelor of Arts.
6. Josefa Desiderio	Bachelor of Arts.
7. Vicente Fabella	Bachelor of Arts.
8. Gonzalo Garcia	Bachelor of Arts.
9. Domingo Guanio	Bachelor of Arts.
10. Paulino Gullas	Bachelor of Arts.
11. Walfrido de Leon.....	Bachelor of Arts.
12. Paz Marquez	Bachelor of Arts.
13. Marceliano Montemayor	Bachelor of Arts.
14. Ricardo Nostratis	Bachelor of Arts.
15. Andres Rañola	Bachelor of Arts.
16. Teofilo Reyes	Bachelor of Arts.

1913

1. Emanuel Baja	Bachelor of Arts.
2. Mamerto Cruz	Bachelor of Arts.
3. Vicente G. Lava.....	Bachelor of Arts.
4. Manuel Lozano	Bachelor of Arts.
5. Tarcila Malabanan	Bachelor of Arts.
6. Socorro Marquez	Bachelor of Arts.
7. Francisco X. Memije.....	Bachelor of Arts.
8. Maximina Navarro	Bachelor of Arts.
9. Sebastian Pamatmat	Bachelor of Arts.
10. Luis Salvosa	Bachelor of Arts.
11. Vidal A. Tan.....	Bachelor of Arts.
12. Pilar Hidalgo (with honors).....	Bachelor of Arts.

1914

1. Gregorio Alcantara	Bachelor of Arts.
2. Jesus P. Angeles.....	Bachelor of Arts.
3. Felipe Araneta	Bachelor of Arts.
4. Gil D. Balagot.....	Bachelor of Arts.
5. Vicente Bunuan	Bachelor of Arts.
6. Amando V. Clemente.....	Bachelor of Arts.
7. Hilario Sudano Clemente.....	Bachelor of Arts.

8. Eliodoro P. Corpus.....	Bachelor of Arts.
9. Pedro Jurado Cortez.....	Bachelor of Arts.
10. Nicanor Cortez	Bachelor of Arts.
11. Servillano de la Cruz.....	Bachelor of Arts.
12. Santiago Dumlao	Bachelor of Arts.
13. Severino Fernandez	Bachelor of Arts.
14. Isaias Fernando y Rodrigo.....	Bachelor of Arts.
15. Caesar Filoteo	Bachelor of Arts.
16. José Manuel Hilario.....	Bachelor of Arts.
17. Vicente Miguel Hilario.....	Bachelor of Arts.
18. Gregorio Natividad Frondoso.....	Bachelor of Arts.
19. Agustin Y. Kintanar.....	Bachelor of Arts.
20. José Carlos Laki.....	Bachelor of Arts.
21. José Ledesma y Araneta.....	Bachelor of Arts.
22. Daniel Ledesma	Bachelor of Arts.
23. Atanacio F. Lenon.....	Bachelor of Arts.
24. Sancho B. de Leon.....	Bachelor of Arts.
25. Lorenzo Datu Licup.....	Bachelor of Arts.
26. José G. Lozada.....	Bachelor of Arts.
27. Teodato P. Macabulos.....	Bachelor of Arts.
28. Telesforo Martinez	Bachelor of Arts.
29. Arturo P. Nitorreda.....	Bachelor of Arts.
30. Bernardo K. Sanchez.....	Bachelor of Arts.
31. Exequiel Santos	Bachelor of Arts.
32. Francisco O. Santos.....	Bachelor of Arts.
33. Proceso E. Sebastian.....	Bachelor of Arts.
34. Pedro de Leon Sorreta.....	Bachelor of Arts.
35. Manuel Tabora	Bachelor of Arts.
36. Tomas V. Vargas.....	Bachelor of Arts.
37. Leodegario F. Victorino.....	Bachelor of Arts.
38. Gavino Verde Yap-Chiongco.....	Bachelor of Arts.
39. Vicente R. Ybiernas.....	Bachelor of Arts.
40. Felipe Ysmael	Bachelor of Arts.
41. Alejo Labrador (with honors).....	Bachelor of Arts.
42. José P. Melencio (with honors).....	Bachelor of Arts.
43. Jesus de la Rama (with honors).....	Bachelor of Arts.
44. Modesta Francisco	Graduate in Pharmacy.
45. Lino José	Graduate in Pharmacy.
46. Filomena Jugo	Graduate in Pharmacy.
47. Joaquin Marañon	Graduate in Pharmacy.
48. Eugenio Quesada	Graduate in Pharmacy.
49. Cresencia Ramos	Graduate in Pharmacy.
50. Maria Tirona	Graduate in Pharmacy.
51. Teresa Yulo	Graduate in Pharmacy.

Graduates of the College of Agriculture

1911

1. Clodoaldo Tempongko Bachelor of Agriculture.
2. Jose Zamora Bachelor of Agriculture.
3. Manuel Roxas Bachelor of Science in Agriculture.

1912

1. Felipe Cavallos Bachelor of Agriculture.
2. Toribio Vibar Bachelor of Agriculture.
3. Silvestre Asunción Bachelor of Agriculture.
4. Andres F. Navarro Bachelor of Agriculture.
5. Vicente F. Allarey Bachelor of Science in Agriculture.

1913

1. Sotero Flordeliza Alvano..... Bachelor of Agriculture.
2. Florencio Gupit Bagui..... Bachelor of Agriculture.
3. Bienvenido Maria Gonzales..... Bachelor of Agriculture.
4. Apolonio Ramos Muños..... Bachelor of Agriculture.
5. Vicente Estrada Villegas..... Bachelor of Agriculture.
6. Edgar Madison Ledyard..... Bachelor of Agriculture.

1914

1. Francisco Quisumbing y Argüelles..... Bachelor of Agriculture.
2. José S. Camus..... Bachelor of Agriculture.
3. José Tirona y Paredes..... Bachelor of Agriculture.
4. Alfredo P. Adriano..... Bachelor of Agriculture.
5. Gonzalo Flor de Liza Merino..... Bachelor of Agriculture.
6. Francisco G. Galang..... Bachelor of Agriculture.
7. Eutiquio Quejano Zulaybar..... Bachelor of Agriculture.
8. Amando Laparan y Layosa..... Bachelor of Agriculture.
9. Vicente G. Bartolomé (of the class of 1913) Bachelor of Agriculture.
10. Antonio Lejano (of the class of 1913)..... Bachelor of Agriculture.
11. Nemesio Blanco Mendiola..... Bachelor of Science in Agriculture.
12. Marcelo Crisostomo, B. A. (of the class of 1913) Bachelor of Science
in Agriculture.

Graduates of the College of Law

1913

1. Eulogio Benitez	Bachelor of Laws.
2. William Cuthbert Brady.....	Bachelor of Laws.
3. William David Cheek.....	Bachelor of Laws.
4. Felix Cajulis y Samedra.....	Bachelor of Laws.
5. Alejandro de Guzman y Floirendo.....	Bachelor of Laws.
6. Charles Chase De Selms.....	Bachelor of Laws.
7. Jose Armayan Espiritu.....	Bachelor of Laws.
8. Eutiquiano García y Vergara.....	Bachelor of Laws.
9. Emilio Y. Hilado.....	Bachelor of Laws.
10. Serafin P. Hilado.....	Bachelor of Laws.
11. John Charles MacMahon.....	Bachelor of Laws.
12. William Frederick Mueller.....	Bachelor of Laws.
13. Feliciano Ocampo	Bachelor of Laws.
14. Ricardo Parás, jr.....	Bachelor of Laws.
15. Manuel Roxas y Acuña.....	Bachelor of Laws.
16. Vicente Santiago y Del Rosario.....	Bachelor of Laws.
17. Quirino Abad Santos y Basco.....	Bachelor of Laws.
18. Adam Daniel Tanner.....	Bachelor of Laws.
19. James Cator Vickers.....	Bachelor of Laws.

1914

1. Gregorio Cordova	Bachelor of Laws.
2. Manuel García Goyena.....	Bachelor of Laws.
3. Fernando Jugo	Bachelor of Laws.
4. Ricardo C. Lacson.....	Bachelor of Laws.
5. Eladio Leño y Respicio.....	Bachelor of Laws.
6. Eusebio Lopez y Mea.....	Bachelor of Laws.
7. Pablo Lorenzo.....	Bachelor of Laws.
8. Anatalio Mañalac y Celindro.....	Bachelor of Laws.
9. Edward Power	Bachelor of Laws.
10. Eusebio Ramos y Faigal.....	Bachelor of Laws.
11. Alexander Reyes	Bachelor of Laws.
12. Aurelio A. Torres.....	Bachelor of Laws.
13. Gustavo Victoriano	Bachelor of Laws.
14. Emilio P. Virata y Potente.....	Bachelor of Laws.
15. H. Lawrence Noble (with honors).....	Bachelor of Laws.
16. Jorge B. Vargas (with honors).....	Bachelor of Laws.
17. José Yulo y Yulo (with honors).....	Bachelor of Laws.

Graduates of the College of Engineering

1914

- | | |
|-----------------------------|----------------------|
| 1. Aurelio L. Corcuera..... | Bachelor of Science. |
| 2. Domingo T. Guanio..... | Bachelor of Science. |
| 3. Ricardo Nostratis | Bachelor of Science. |

Graduates of the College of Veterinary Science

1914

- | | |
|---------------------------------------|--------------------------------|
| 1. Angel Kaingal Gomez..... | Doctor of Veterinary Medicine. |
| 2. Ambrosio Gison y Trespeces..... | Doctor of Veterinary Medicine. |
| 3. Alfonso Lecaros y del Mundo..... | Doctor of Veterinary Medicine. |
| 4. Bernardo de Peralta y Clariño..... | Doctor of Veterinary Medicine. |

Masters Degrees Conferred by the University of the Philippines

1913

- | | |
|---------------------------------|--------------------|
| 1. Andrew Washington Cain..... | Master of Arts. |
| 2. Artemus Lawrence Day..... | Master of Arts. |
| 3. Sol Felty Light..... | Master of Arts. |
| 4. Lawrence Diller Wharton..... | Master of Arts. |
| 6. Manuel Luz Roxas..... | Master of Science. |

Honorary Degrees Conferred by the University of the Philippines

1911

- | | |
|----------------------------------|-----------------|
| Cayetano Simplicio Arellano..... | Doctor of Laws. |
|----------------------------------|-----------------|

1912

- | | |
|----------------------------|--------------------|
| José Algue y Sanllehy..... | Doctor of Science. |
|----------------------------|--------------------|

1913

- | | |
|----------------------------------|-----------------|
| Trinidad H. Pardo de Tavera..... | Doctor of Laws. |
|----------------------------------|-----------------|

1914

- | | |
|-----------------------------|-----------------|
| Newton Whiting Gilbert..... | Doctor of Laws. |
|-----------------------------|-----------------|

THE UNIVERSITY OF THE PHILIPPINES

THE SCHOOL OF FINE ARTS

FOURTH ANNUAL ANNOUNCEMENT

Faculty of the School of Fine Arts

RAFAEL ENRIQUEZ,

Dean of the School of Fine Arts and Instructor in Color and Composition.

MIGUEL ZARAGOZA,

Instructor in Anatomy.

JOSE MARIA ASUNCION,

Secretary of the School of Fine Arts and Instructor in the History of Art.

JOAQUIN HERRER,

Instructor in Landscape and Drawing from Life.

HENRY LEVY,

Instructor in Engraving.

VICENTE FRANCISCO,

Instructor in Sculpture and Moulding.

VICENTE RIVERA Y MIR,

Instructor in Drawing.

FABIAN DE LA ROSA,

Instructor in Decorative Art.

TEODORO BUENAVENTURA,

Instructor in Elementary Drawing.

SCHOOL OF FINE ARTS

The School of Fine Arts was established by authority of Act No. 1870, founding the University of the Philippines, which was enacted by the First Philippine Legislature on June 18, 1908. The first session of this school began in June, 1909. The building is situated at No. 931 Calle San Sebastian, in the Quiapo district of the city of Manila.

The School of Fine Arts has as its chief purpose the teaching and development of the graphic and plastic arts in their various and manifold branches. An effort is made also to exert an influence toward the advancement and refinement of those industrial trades which are of an artistic nature; such as gold and silver work, ceramics, embroidery, lace-making, furniture-making, and metal work.

INSTRUCTION

The school offers courses of instruction in painting, in sculpture, and in engraving. No tuition fee is charged.

OUTLINE OF COURSES

FIRST COURSE

PAINTING

First year.—Elementary drawing: figures, landscape, and decoration.

Second year.—Drawing from antique statuary and drapery; perspective.

Third year.—Drawing from antique statuary; anatomy and anthropology in their artistic aspects; elementary decorative painting.

Fourth year.—Advanced landscape; advanced decorative painting and original designing; theory and history of art and a study of ancient apparel; drawing from life.

Fifth year.—Coloring and original designing; drawing from life.

SECOND COURSE

SCULPTURE

First year.—Elementary drawing: figures, landscape, and decoration; elementary modeling.

Second year.—Drawing and modeling from antique statuary and drapery; perspective.

Third year.—Modeling and molding from antique statuary and drapery; anatomy and anthropology in their artistic aspects; drawing from life.

Fourth year.—Modeling and molding from life; theory and history of art and a study of ancient apparel; drawing from life.

Fifth year.—Modeling and molding from life and original designing; drawing from life.

THIRD COURSE

ENGRAVING

First year.—Elementary drawing: figures, landscape, and decoration; the elements of engraving.

Second year.—Pen-and-ink sketching; drawing from antique statuary; perspective; modeling in wax.

Third year.—Engraving of incised and relief designs; drawing from antique statuary; anatomy and anthropology in their artistic aspects; modeling in wax; drawing from life.

Fourth year.—Engraving of incised and relief designs; modeling in wax; drawing from life; theory and history of art and a study of ancient apparel; etching.

Fifth year.—Engraving of incised and relief designs; modeling in wax and original designing; the use of machines.

REQUIREMENTS FOR ADMISSION

Students are admitted by competitive examination as vacancies occur. A limited number of elementary students who show marked proficiency in drawing are admitted. For further particulars apply to the Dean.

EXAMINATIONS AND PRIZES

Three days before the close of each school year there will be an exhibition of the work done by the pupils which, in the opinion of the instructors of this school, deserves to be exhibited. Prizes will be awarded, and the qualifications of each pupil will be determined by various committees of instructors, appointed

for this purpose. Each committee is composed of the instructor of the class whose work is to be judged, and two others who are appointed to assist him with their advice; these constitute the board to determine the qualifications and to award the prizes. In each class there will be given as prizes a bronze medal with appropriate diploma, and two certificates of honorable mention. In addition, a certificate of merit is given, instead of the medal, to any pupil who has previously been awarded a medal in the same class; provided of course that the character of his work again deserves this distinction.

All work for which the pupils are awarded prizes shall become the property of the school.

RECORDS AND CERTIFICATES

At the end of each year those pupils who request it will be given a record of the studies which they have completed during the year, showing the proficiency which they have acquired.

Those pupils who complete satisfactorily the five years' work as outlined for any one of the courses which are given in this school, will be entitled to receive a diploma or a certificate of proficiency.

HOURS OF INSTRUCTION

Subjects.	Hours.	Instructor.	Day.
Elementary drawing	8 to 9 a. m.	Miguel Zaragoza	Monday to Friday inclusive.
	10 to 12 a. m.	Fabian de la Rosa	
	3 to 4 p. m.	Miguel Zaragoza	
	4 to 6 p. m.	Vicente Rivera and Teodoro Buenaventura.	
	6 to 8 p. m.	Henry Levy and Vicente Francisco.	
Drawing from the antique	8 to 10 a. m.	Teodoro Buenaventura.	Do.
	6 to 8 p. m.	Vicente Rivera	Do.
Advance landscape	4 to 6 p. m.	Joaquin Ma. Herrero	Do.
Drawing from life	6 to 8 p. m.	Joaquin Ma. Herrero	Do.
Drawing from life in oil	10 to 12 a. m.	Rafael Enriquez	Do.
Decorative painting	8 to 10 a. m.	Fabian de la Rosa	Do.
Modeling and moulding	10 to 12 a. m.	Vicente Francisco	Do.
Engraving	4 to 6 p. m.	Henry Levy	Do.
Anatomy	2 to 3 p. m.	Miguel Zaragoza	Do.
Perspective	3 to 4 p. m.	José Ma. Asunción	Tuesday and Thursday.
History of art	3 to 4 p. m.	José Ma. Asunción	Monday, Wednesday, and Friday.

The office of the Secretary of the School of Fine Arts will be open every working day during the school year from 4 to 6 p. m. to transact any business connected with the administration of the school.

NUMBER OF PUPILS

The number of pupils who matriculate in this school each year varies from 500 to 900.

Diplomas awarded 1914

PAINTING

Fernando C. Amorsolo.
Doroteo Abaya.

Domingo A. Celis.
Narciso Reyes.

SCULPTURE

Horacio Reyes Sales.

ENGRAVING

Lorenzo Tomás Cullell.

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